INDUSTRIAL MEDICINE AND SURGERY

The Journal of Medicine in Industry

With which are consolidated "The Industrial Doctor"® and "International Journal of Medicine and Surgery"

This magazine is published to promote sound thought concerning industrial medicine and the surgery of trauma. To that end it will contain articles, news items, reports, digests, and other presentations, together with editors' comments. The editorial policy is to encourage frank discussion. On this basis contributions are invited. The editors will exercise care in checking on the accuracy of data printed but in all other respects articles and opinions of which expression is allowed are the opinions of their authors—the editors reserving in all cases the right to comment on the same in the current or any subsequent issues as they may be inclined.

Volume 21 SEPTEMBER 1952 *Number 9*

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NORBERT J. ROBERTS, M.D., was appointed Chief Medical Officer of the Pennsylvania Railroad, August 6, 1952. DR. ROBERTS is well known in the field of industrial hygiene and as a specialist in internal medicine. He will administer medical policy for the railroad and develop the personnel and facilities planned for a new medical program for the company employees. As a part of this program he will be assisted by three regional medical officers, with headquarters in Chicago, Pittsburgh, and Philadelphia. DR. ROBERTS will be a member of the staff of vice-president-operation, with offices in Philadelphia. Decision to broaden the functions of the railroad's medical department resulted from an extensive study which revealed the need for modernizing the department and the opportunity to improve employee health. The new program will eventually encompass all phases of industrial hygiene, including preventive medicine, health education, periodic health examinations, dispensary treatment and care, and voluntary medical counsel. The most modern professional and scientific equipment will be added to existing facilities. DR. ROBERTS is a native of New York State, and a graduate of the University of Buffalo with the degree of Doctor of Medicine. He served as resident in pathology and medicine at the Millard-Fillmore

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Hospital, in Buffalo, and later as a flight surgeon overseas during World War II. Following his release to inactive duty with rank of Major, he completed a three-year fellowship in internal medicine at the Mayo Foundation for Medical Education and Research and, after further study, was awarded a Master of Science degree by the University of Minnesota, in 1949. During the past three years he has served on the medical staff of the Standard Oil Company (New Jersey). He is a diplomate of the American Board of Internal Medicine and a member of the American College of Physicians.

ROBERT M. SHERMAN, M.D., has been appointed by Allis-Chalmers Manufacturing Company, as Industrial Medical Director of its Norwood, Ohio, plant. DR. SHERMAN was formerly on the staff of the surgical department at Caylor-Nickel Clinic at Bluffton, Indiana.

ARTHUR K. PETERSON, M.D., Medical Director, R. R. Donnelley & Sons Company, and Secretary of the Industrial Medical Association, recently received the letter of which the following is the translation: "Distinguished Dr. Peterson: I am highly honored in informing you of the action taken in the General Assembly yesterday, by unanimous vote of all the members of this Association, 'Naming as Corresponding Member of the Industrial Medicine Association of Cuba, Dr. Arthur K. Peterson, of Chicago, U.S.A., in recognition of the outstanding work he has done in this field of medicine.' This action was taken after hearing the report submitted by the Board of Directors which, in its meeting of June 6th, took the action of proposing to the General Assembly the honor herewith accorded. The Board of Directors was fully informed of the exceptional merits of Dr. Peterson by Dr. Rafael Penalver Ballina, who could vouch for the work that Dr. Peterson has accomplished in his Medical Department, and the high regard in which he is held among his American colleagues. In the name of the President of this association, Dr. Oswaldo Morales Patino, and on my own behalf, I must express the pleasure it causes all of us that your name honors our list of Associates.

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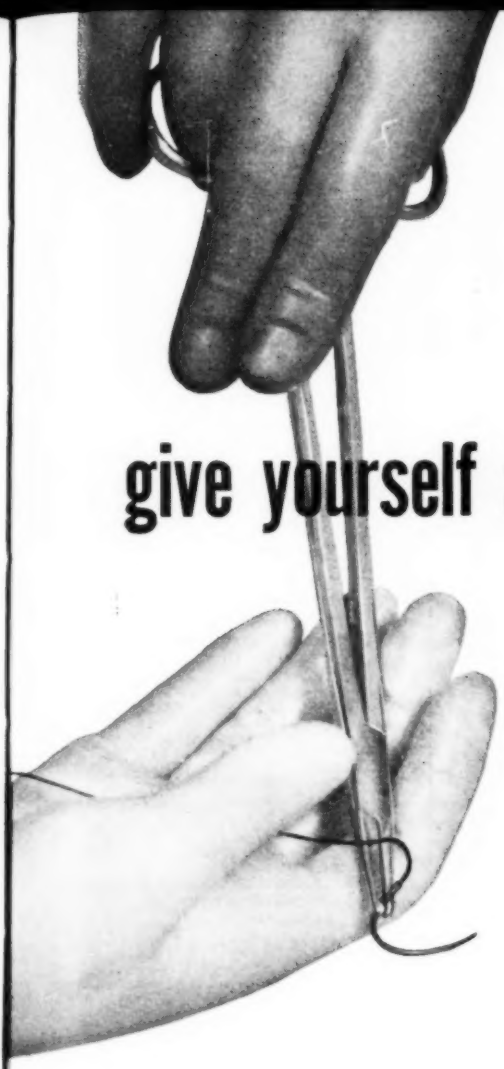

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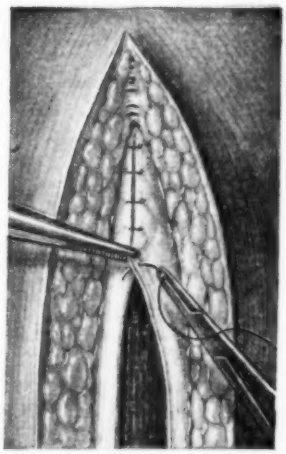

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Please accept the sincere congratulations of your obedient servant, Rafael Penalver."

HERBERT K. ABRAMS, M.D., has been appointed Medical Director of the newly established Health and Welfare Fund of the Chicago Office, Theater and Amusement Building Janitors Union, Local 25, with headquarters at 509 South Wabash Avenue. DR. ABRAMS was formerly Chief, Bureau of Adult Health, Division of Preventive Medical Services, State of California Department of Public Health.

THE American Fracture Association—"For the Study of the Treatment of Fractures"—will hold its Thirteenth Annual Meeting October 6-9, 1952, at Hotel Sherman, Chicago. H. W. WELLMERLING, M.D., Bloomington, Illinois, is Secretary-Treasurer.

INDUSTRIAL Hygiene Foundation's Seventeenth Annual Meeting and Conferences will be held at Mellon Institute, Pittsburgh, on November 19 and 20, 1952. The four professional conferences—Medical, Chemical, Engineering, and Legal—will occupy the first day, and the general (management) meeting will be held on the second day.

WILLIAM G. FREDERICK, SC.D., Director of the Bureau of Industrial Hygiene of the Detroit Department of Health, spent June, July, and August in West Germany. He was sent there by the U.S. Department of State as special consultant to leaders of German industry, governmental agencies and labor groups on matters of health, hygiene and safety in industry.

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REFERENCES:

1. Gastric Tolerance for Aspirin and Buffered Aspirin. Ind. Med. 20:480, Oct. 1951.
2. Effect of Buffering Agents on Absorption of Acetylsalicylic Acid. J. Am. Pharm. Assoc., Sc. Ed. 39:21, Jan. 1950.

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THIS MONTH

DR. FRANK R. FERLAINO (page 420) opens up on "The Occupational Hazards of Boxing," outlining certain medical recommendations for their control. This is a subject on which much is being said, and more will be—now that the boxing arena has progressed from the barn and barge of John L. Sullivan's time to the family living room. A two-day conference, the first of its kind, bringing together representatives from "more than half a dozen states" was held in New York in July to discuss measures to protect young boxers from mutilation and to promote the exchange of medical information on the effects of athletics. The proceedings were carefully summarized in *The New York Times* of July 26, as follows: "At a medical symposium held at the Astor Hotel under the sponsorship of the State Athletic Commission, Dr. Marvin A. Stevens, chairman of the medical advisory board of the State Commission, and other physicians associated with boxing and other sports suggested that closer medical supervision of young athletes would help prevent death and serious injury. Dr. Vincent A. Nardiello, physician at Madison Square Garden, reported that since 1946, 87 boxers over the world had died during or soon after professional and amateur bouts. Forty of the deaths were in foreign lands. About 90% of boxing deaths can be attributed to the aggravation of previous injuries, Dr. Nardiello estimated. Thorough examinations of boxers before they make their first match would reduce the death and injury toll. After a boxer has been knocked out or seriously injured, an intensive examination with all the chemical and electronic diagnostic adjuncts available should be made before he is pronounced fit to fight again. Techniques used by handlers to stop bleeding during a bout were sharply criticized following reports by Dr. Edward Dunlap, assistant clinical professor at Cornell University, Dr. Richard Stark, assistant attending surgeon at New York Hospital, and Dr. Charles G. Child, attending surgeon, New York Hospital. The average handler, it was said, pulls a filthy towel from around his neck and rubs infection into open wounds on the face. Carpenter's glue is sometimes used to seal temporarily the edges of gaping facial wounds. Styptic solutions that turn torn flesh into a rock-like and non-bleeding mass may be poured into a wound. Adrenalin is rubbed into wounds to constrict capillaries and stanch blood flow; so much adrenalin is sometimes used that a fighter's pulse, blood pressure and respiratory rate are affected. These practices result in the development of huge masses of scar tissue that is disfiguring, may be reopened in a later bout, and is dangerous because of the presence of infection, it was said. Most ring seconds do not even know the elementary principles of first aid, the physicians reported. Permanent damage to the brain frequently results from lack of oxygen supply to brain tissues following a knockout, Dr. Child reported. He recommended that following a knockout oxygen be fed by tube from an inhalator into the lungs of an unconscious fighter without delay to prevent permanent damage. In New York State most rings are now equipped with emergency oxygen equipment, according to spokesmen for the commission. Trainers have a lot to learn about the training of even champion fighters, it was said. The collapse of Ray Robinson, challenger in the world light-heavyweight title bout on June 25, was cited as an instance of bad judgment in training. The bout was held on a hot, still and humid night. According to Dr. Alexander I. Schiff, Dr. Ira A. McCown and Dr. Nardiello, all of whom were present representing the commission, the temperature in the ring under 100 kleig lights was estimated at 130°. Robinson was 'dried out' for the fight. He took no water during the day and none during the match. He collapsed of heat exhaustion after 11 rounds. A few swallows of water might have prevented the collapse, the doctors said." In *J.A.M.A.* (149, 17, 1522, August 23, 1952) DRS. EWALD W. BUSSE and ALBERT J. SILVERMAN, of Denver, summarized their article on "Electroencephalographic Changes in Professional Boxers," as follows: "In order to prevent serious injuries or death, the State Athletic Commission of Colorado, acting on the recommendation of one of the authors of this article (E. W. B.), unanimously passed a regulation requiring periodic electroencephalographic examinations on all professional boxers performing in Colorado. Although several states recommend the examination in specific cases, the authors do not know of any other state in which such electroencephalograms are compulsory. The regulations as set up by the State Athletic Commission were: (1) A professional boxer must have an electroencephalogram at least once a year. (2) In the case of a 'knockout,' an electroencephalogram must be done within two weeks of the injury. (3) Frequent, repeated examinations could be done in the case of a boxer with suspicious recording. Our purpose in this article is to record the results obtained from the first year's electroencephalograms as an initial report and to attempt to evaluate the worth of the electroencephalogram in safeguarding the health of those who participate in boxing." An editorial in *Chicago Tribune* (August 23), commenting on this article, said: "Two staff members of the Colorado Psychopathic hospitals . . . . said that of 24 boxers examined in the course of a year, four showed severe brain disturbances and five moderate disorders. The more severe disturbances were found in boxers who had been knocked out. Mild psychic disturbances caused by brain damage are observed in a large percentage of boxers, the authors said. In the language of the training gyms, the fighters are punch drunk. Abnormal brain function was more common in younger fighters, the doctors found. They speculated that older boxers, if they had escaped brain damage in their earlier fights, learned to protect themselves in the ring. The statistical sample in the Colorado tests is too small to warrant the conclusion that three out of every eight professional fighters in the country are walking on their heels from being hit too often over the head, but the danger of mental deterioration from ring injuries is well recognized. Gene Tunney, it will be remembered, quit the ring when he was heavyweight champion of the world for fear that he would end up catching non-existent flies."

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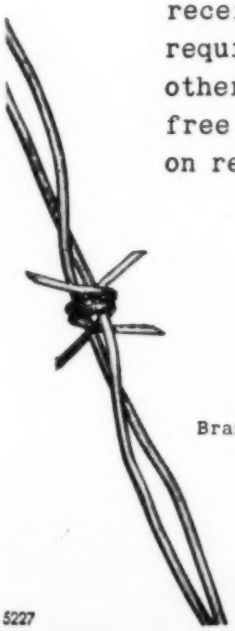

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Industrial Medical and Related Chronology selected and arranged by ROBERT T. LEGGE, M.D., F.A.C.S., Berkeley, California

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—Joseph Conrad

♍ = Virgo — August 22-September 21

1952 SEPTEMBER

SEPTEMBER—the time to resume; to remember what we have; to hold fast to it. Among the things to be remembered is this, from the Republican platform: "We recognize that the health of our people as well as their proper medical care cannot be maintained if subject to bureaucratic dictation. There should be a just division of responsibility between government, the physician, the voluntary hospital and the voluntary health insurance. *We are opposed to Federal compulsory health insurance with its crushing cost, wasteful inefficiency, bureaucratic dead weight and debased standards of medical care.* We shall support those health activities by government which stimulate the development of adequate hospital services without Federal interference in local administration. We favor support of scientific research. We pledge encouragement of methods of assuring health protection."

☽ 1st Quar. ○ Full Moon ☾ 4th Quar. ● New Moon

1 ♍ M — 1858—The Quarantine Station on Staten Island was attacked and destroyed by deliberate action of citizens who had been tormented for 50 years with yellow fever epidemics attributed to lax administration.
"A stout heart breaks bad luck"—Cervantes

2 ♍ Tu — 1945—Walter Bradford Canon died. Was Professor Emeritus at Harvard, dean of American Physiologists, author of "The Wisdom of the Body—Digestion and Health."
"Industrial hygiene will move toward exactness as a science"—McCord

3 ○ W — 1940—Hans Zinsser, eminent scientist, physician and author. Professor of Bacteriology at Columbia University, died in New York. Wrote Textbook of Bacteriology; "Rats, Lice, and History"; and "As I Remember Him."
"Nothing is so useless as a general maxim"—Macauley

4 ♍ Th — 1716—James Lind born at Edinburgh, took his degree from University of Edinburgh, served in the British Navy. He wrote a book, "Treatise on Scurvy," and an essay on means of preserving the health of the seaman of the Royal Navy by the use of lemon juice as a ration.

5 ♍ Fr — 1894—Dr. G. T. Swarts established the first state laboratory while secretary of the Rhode Island State Board of Health.
1916—Congress enacted a model Workman's Compensation Law for civilian employees in U.S.

6 ♍ Sa — 1917—Theodore Charles Lyster, "Father of Aviation Medicine," appointed Chief Surgeon, Aviation Section, U.S.A.
1876—American Dermatological Association organized at University of Pennsylvania. James White, of Boston, elected president.

7 ♍ S — 1829—Frederick August Von Stradonitz Kekule born at Darnstadt, Germany. Organic chemist, noted as founder of the theory of valency. Pioneer in the constitution of the carbon compounds.
"A dinner lubricates business"—Stowell

8 ♍ M — 1950—At the American Chemicals Society meeting at Chicago, Dr. John Buchanan, of the University of Pennsylvania Medical School, was awarded the Eli Lilly Award in Biological Chemistry.
"Too much rest itself becomes a pain"—Pope

9 ♍ Tu — 1823—Joseph Leidy born at Philadelphia. Eminent anatomist and authority in vertebrate and invertebrate anatomy; Professor in the University of Pennsylvania.
"If a doctor's life may not be a divine vocation, then no life is a vocation, and nothing is divine"—Paget

10 ☾ W — 1904—Sir Almoth Edward Wright of London developed immunity opsonines.
"What matters what anybody thinks? 'It will be all the same a hundred years hence.' That is the most sensible proverb ever invented"—George du Maurier

11 ♍ Th — 1908—Charles Harrington, Professor of Hygiene, Harvard University, author of "Practical Hygiene," died at Boston.
"Neurotics and psychotics see, hear and smell things which do not exist. Official investigators, similarly afflicted, seem to be perfectly normal"—Marx

12 ♍ Fr — 1872—American Public Health Association organized at Long Branch, New Jersey, Dr. Stephen Smith, President.
"The scientific man is the only person who has something new to say and who does not know how to say it"—Barrie

♎ = Libra — September 22-October 22

13 ♍ Sa — 1851—Walter Reed born in Virginia. Graduate of Bellevue Hospital Medical School, Professor of Bacteriology at Army Medical School, Major in Medical Corps, U.S.A. His work with yellow fever research incriminated the Aides Aegypti mosquito as the carrier.

14 ♍ S — 1923—Ella M. A. Enlows, an American bacteriologist, developed a sugar-free medium for fermentation studies.
"One of the most delightful sayings of antiquity is the remark of Heraclitus about his predecessors, that they had much knowledge but no sense"—Osler

15 ♍ M — 1856—William Budd, lecturer on the Practice of Physic, Bristol Medical College, published in the *Lancet* his account of fever at the Clergy Orphan School, St. Johns Wood. This was the beginning of the collected material for his classic work on typhoid fever.

16 ♍ Tu — 1880—William Mayo of Rochester, Minnesota, entered University of Michigan to study medicine. He received degree of M.D. on June 28, 1883, to become one of America's greatest surgeons.
"A soothing satisfaction follows all acts of benevolence"

17 ♍ W — 1683—Antonius Van Leeuwenhoek, 1632-1723, Delft naturalist, for the first time found micro-organisms in the teeth—bacterial chains and clumps as well as individual spirilla and baccilli.
"Style is the dress of thoughts"—Chesterfield

18 ♍ Th — 1950—In Salem, New Jersey, Lt. George C. Lippincott, M.C. U.S.N., the oldest retired officer in the U.S. Navy, and the oldest living graduate of Jefferson Medical College, Class 1875, was honored in a civic ceremony in his native town, on his 100th anniversary.

19 ● Fr — 1931—Dr. David Starr Jordan, President of Stanford University, died. He achieved world leadership as an educator.
"Do not blame bacteriology for the sins of some few workers'—Jacobi

20 ♍ Sa — 1910—Ehrlich announced to the profession at the Section on Dermatology and Syphilology of the German Medical and Scientific Congress held at Konigsberg his discovery of 606.
"A patient's mind can be as interesting as his colon"

21 ♍ S — 1866—Charles Nicolle born at Rouen. A famous Pasteurian, Nobel Prize Winner, he demonstrated role of the louse in transmission of typhus; developed anti-venom serum, and many bacterial and immunizing agents.
"Evil perpetually tends to disappear"—Spencer

22 ♎ M — 1791—Michael Faraday, born at Newington, Butts. English physicist and chemist. Was assistant to Humphrey Davy, and later director of the Royal Institution Laboratory. His notable discoveries were in the field of related sciences of electricity and magnetism.

23 ♎ Tu — 1882—Herbert McLean Evans, renowned anatomist, experimental biologist, and endocrinologist at University of California, born at Modesto, California. Discoverer of vitamin E and the growth hormone of the pituitary gland.

24 ♎ W — 1898—Sir Howard W. Florey born at Adelaide. Professor of Pathology at Oxford University. Nobel laureate, sharing Nobel Prize, 1945, with Sir Alexander Fleming, discoverers of penicillin.
"A politician—one that would circumvent God"

25 ♎ Th — 1904—Niels Finsen, Danish physician, discovered the Finsen light. Nobel Prize winner. Died at Copenhagen.
"When liberty goes out of a place, it is not the first to go, nor the second or third to go. It waits for all the rest to go—it is the last"—Whitman

26 ☽ Fr — 1939—Sigmund Freud died at Hampstead, England. He was forced to leave Vienna, as psychoanalysis was alien to Nazi philosophy. His last words were, "There must be some place in the world where freedom still exists."
"See! This our fathers did for us"—Ruskin

27 ♎ Sa — 1849—Ivan Petrovitch Pavlov born at Ryazan in Russia. At the Institute for Experimental Medicine he conducted researches which were destined to place physiology in the realm of an exact science. In 1904 he received the Nobel Prize for his work on digestion.

28 ♎ S — 1898—Louis Pasteur whose experiments in the fermentation of beer and wine were the foundation of his work on minute organisms, died near St. Cloud, France.
"I am the sworn poet of every dauntless rebel, the world over"—Whitman

29 ♎ M — 1889—Clarence Olds Sappington born in Kansas City, Missouri. Stanford M.D. 1918, Harvard D.P.H. 1924. Died November 6, 1949. Knudson Award 1938-39.
"It is not incumbent on thee to complete thy work, but thou must not therefore cease from it"—Talmud

30 ♎ Tu — 1802—Antoine Jerome Balard, a French apothecary, born at Montpellier. Discovered the element bromine.
"Some people are so leisurely about their business and so busy about their leisure that the transition to retirement will be scarcely noticeable"—Your Later Years

XUM

INDUSTRIAL MEDICINE AND SURGERY
The Journal of Medicine in Industry
With which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery"
Volume 21 SEPTEMBER 1952 *Number 9*

Psychogenic Aspects of Diseases of the Skin of Industrial Workers, With Discussion of "Red Hands" of Occupational Origin

JOSEPH V. KLAUDER, M.D.
Philadelphia

PSYCHODYNAMICS and psychosomatic relations in diseases, including diseases of the skin, have been stressed in the literature. Attention has been called to psychogenic factors in occupational medicine[1,2*] in relation, for example, to maladjustment and disturbed emotional state from divers causes as a contributory role in accidents.

There is little discussion in the literature of psychogenic aspects in diseases of the skin of the industrial worker.

The Role of Suggestion

AN IMPORTANT phase in the consideration of cutaneous disease among employees, especially female, is the role of suggestion causing an "epidemic" of "eruptions." Such occurrence arises from an employee who insists that his or her eruption is occupational. This employee is usually of the type designated a "trouble maker." Through gossip and fear of "contracting" a skin disease, co-workers develop a cutaneous complaint in which itching is conspicuous. A phobic and near-panic state may ensue.**

These circumstances are illustrated in the following:

A girl, a telephone operator, developed a vesicular eruption of tinea on her hands which she regarded as "brass poisoning," in relation to some new installations on her switchboard. Subsequently her co-workers in the vicinity complained of itching, which they too regarded as evidence of "brass poisoning." As a consequence six other girls were referred for examination. They complained of itching, chiefly of the forearms and face; some presented excoriations from scratching. A few had dry hands, which was ascribed to more than usual washing and scrubbing in their attempts at prevention of "brass poisoning."

A woman employed in the coning department of a factory processing cotton yarns and threads insisted that her eruption was occupational. Subsequently other women in the same department complained of itching and of a rash. Eight women were referred for evaluation of their complaints. The instigator here presented lesions of neurodermatitis on the cubitals and sides of the neck. This diagnosis precluded occupational origin, although she was adamant in her opinion that it was caused by sulphur black and sumac green threads. Her only reason for this was that she experienced more itching when handling these threads. Of the other women, two had had an "eruption," which they said disappeared and then reappeared on resuming work. For this reason they stopped working and hesitated to return. Two presented only excoriations of the forearms from scratching. One had lesions of psoriasis, one had acne, and one had pronounced chapped hands. For psychological reasons only, patch tests were conducted with the emulsion (its ingredients did not suggest allergenic action) through which the threads ran, a number of colored threads, the leather of a hand-grip comprising a Boyce knotter, and a gummed label. These tests were negative.

A few of a number of female employees developed a mild dermatitis of the hands after handling a textile material. This occurred only after a certain phase in its process. Patch test studies showed a low incidence of mild primary irritant action, not allergenic. Subsequently some employees handling the material complained of itching, especially of the hands, without dermatitis. I suspected a psychogenic basis, which was supported when a few other employees who did not handle the material but passed through the room where it was processed also complained of itching. A bland ointment was prescribed. All the workers used this ointment as a pro-

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This paper was written in cooperation with the Committee on Dermatology of the INDUSTRIAL MEDICAL ASSOCIATION, of which the author is a member.

*A pioneer in this field was the late E. E. SOUTHARD, of Boston, in studies he termed mental hygiene of industry sponsored by Engineering Foundation: "The Mental Hygiene of Industry: A Movement that Particularly Concerns Employment Managers." (*Indust. Management*, 59:100, 1920.) "Trade-Unionism and Temperament. A Psychiatric Point of View in Industry." (*Indust. Management*, 59:265, 1920.) "The Modern Specialist in Unrest." (*Indust. Management*, 59:462, 1920.)

**This recalls the statement of DANTIN-GALLEGO and ARMAYOR, "There arose a mass hysteria almost to the point of a true collective psychosis contrasting with the relatively minor allergic phenomena," in their report "Some New Toxic Woods: Some New Manifestations of Toxicity" (*Indust. Med. & Surg.*, 21:41 (January) 1952).

tective or barrier cream (although this was not its original purpose). They extolled its use in prevention of itching. Cutaneous complaints disappeared. I believe the use of the ointment as a barrier cream served a good psychologic purpose.

Employees in a railroad repair shop complained of contagiousness of an eruption affecting the hands of a fellow worker. Subsequently other employees complained of a rash; they became disgruntled and appealed to their union which insisted that means be taken to stop the "epidemic" of eruptions. The "epidemic" consisted of 15 men and one woman, who were referred for examination. The employee with the alleged contagious disease presented an eczematous dermatitis of the hands and scattered lesions elsewhere. There was no evidence of occupation causation (a solvent was not used as a hand cleanser). Only one had an occupational dermatosis—oil folliculitis, excluding the occupational relation to kerosene as a hand cleanser. This was regarded as the cause of dermatitis of the hands of four of the patients.* Tinea of the hands and feet was present in three. Examination of three was negative; they had had an eruption and were apprehensive of its recurrence in consideration of the cutaneous outbreak of others. Diagnoses of the lesions presented by the remaining four were lichen planus, acne vulgaris, seborrheic dermatitis, and localized neurodermatitis.

The following is from a letter written by the industrial nurse who referred a typist employed in a hosiery mill: "Miss _____ is an office clerk on perpetual inventory in our stock department. She works where nylon is being packed and unpacked through the day, and at times her face is quite inflamed. She visited her physician who told her it was possible that she was allergic to nylon. She likes her position and does not want to leave our employ, and we do not wish to change her to another job." She presented a mild eruption of acne vulgaris on the upper part of the back and shoulders There were a few lesions on the face and congestive remains of former lesions. What was most conspicuous were excoriations from picking and digging the skin. Although such excoriations are common in patients with acne, an interesting aspect was a possible psychic relation of itching and her impression of being allergic to nylon. She worked at a desk in front of a table on which nylon is placed only on some days. She admitted picking her face to relieve itching which, she said, occurred only on the days nylon was stacked on the table. She wears nylon stockings but has never reacted to them.

*The role of solvents used as a hand cleanser in causing occupational dermatitis is discussed elsewhere: KLAUDER, J. V., GROSS, E. R., and BROWN, H.: "Prevention of Industrial Dermatitis With Particular Reference to Protective Hand Creams, Soap, and the Harmful Role of Some Cleansing Agents" (*Arch. Dermat. & Syph.*, 41:331, 1940); KLAUDER, J. V., and HARDY, M. K.: "Actual Causes of Some Occupational Dermatoses: A Further Study of 532 Cases with Special Reference to Dermatitis Caused by Certain Petroleum Solvents" (*Occup. Med.*, 1:168, 1946); KLAUDER, J. V., and BRILL, F. A.: "Correlation of Boiling Ranges of Some Petroleum Solvents with Irritant Action on Skin" (*Arch. Dermat. & Syph.*, 56:197, 1947).

Fear of Contagion

TO MANY persons diseases of the skin are loathsome and contagious, although this concept is in proportion to their intelligence. This attitude is an anachronism of the Middle Ages, when all diseases of the skin were usually identified with leprosy or venereal diseases. Consequently all dermatoses were considered to be contagious, and the afflicted persons were regarded with contempt.

This attitude is still prevalent, as illustrated in the number of requests of patients for letters to certify that their cutaneous disease is not contagious, and that it is proper to have their nails manicured, or to patronize a barber shop, beauty parlor or public bath. Consistently a woman, an industrial worker, implored me not to disclose the diagnosis of tinea of her hands and feet, to the industrial physician and nurse. She said the diagnosis would "leak out" and that she would rather quit her job than have her fellow workers become informed or her ailment.

A young male clerk with eczematous dermatitis (non-occupational) of the face, neck and forearms was referred with the following letter from the industrial nurse: "This patient has an unsightly and distressing rash. Improved office morale demands that this rash be mitigated." The writer of this letter further informed me that 10 of the young man's fellow workers, mostly girls, are clerks in the same room as the patient. To avoid contracting his skin disease, they cleansed with alcohol, ear and mouthpieces of telephones, desk pads, pencils, and other office paraphernalia.

This reaction, not only of fellow workers but also of the public, stigmatizes an employee with a recurring disease of the exposed skin (severe acne, chronic lupus erythematous, atopic dermatitis, psoriasis, ichthyosis, and still other diseases), placing him in the category of a handicapped person. This reaction, too, delays resumption of certain work until a dermatosis of the exposed skin completely disappears. I advised a woman employee whose eczematous dermatitis was sufficiently improved that she could resume work. She replied, "I am anxious to go back, but I fear the reaction of the other girls that my eruption is contagious."

Objectification of the Skin

ONE IS MORE aware of the skin than any other organ. It occupies an important place in the consciousness, not alone as an abstract idea but also because it is the site of many sensations.

The skin is appreciated through most all of the senses and is objectified more in health and disease than is any other organ. As an organ of expression it is comparable only to the eye.

To the female the skin is far more important than to the male; it is an object of beautification and of sex appeal, comparable perhaps only to her figure and breasts. One woman, an industrial worker whom I examined in one of the above-mentioned "epidemics" referred to her integument "as my precious skin."

A cutaneous involvement—an eruption, disfigurement, abnormal sensation, notably itching, indeed an insignificant blemish, a mild acne, a few superfluous hairs—is potent in producing psychic reaction that decreases the self respect, engendering a feeling of inferiority, of abnormality, of uncleanliness that is difficult to overcome. Frequently patients remark, "I feel so unclean." Such reaction, if pronounced, is well known to psychiatrists, since they comprise what Janet calls *"l'obsession de la honte du corps."* The milder reactions are well known to dermatologists, since they constitute an important phase in practice.

Discussion of the psychogenesis of these reactions is pertinent. Any striking deviation of normal face and form is likely to influence the individual's relations to others. Exceptional beauty may be considered a positive deviation, disfigurement a negative. Ugliness is sometimes repulsive, sometimes mirth-provoking. Fear and dread of disfigurement are innate in mankind. This was apparent in Biblical times from the admonition in the 3rd book of Moses (Leviticus), Chapter 21:

"Whosoever he be of thy seed in their generation that hath any blemish, let him not approach to offer the bread of his God. For whatsoever man he be that hath a blemish, he shall not approach: a blind man, or a lame, or he that hath a flat nose, or any thing superfluous, Or a man that is brokenfooted, or brokenhanded, Or crookedbackt, or a dwarf, or that hath a blemish in his eye, or be scurvy, or scabbed, or hath his stones broken; No man that hath a blemish of the seed of Aaron, the priest, shall come nigh to offer the offerings of the Lord made by fire: he hath a blemish; he shall not come nigh to offer the bread of his God."

An unblemished skin is implied in the concept of one's body and its parts. This is commonly spoken of as the body-image concept, an alteration of which has significance in terms of one's relationships to others.* It is to be recalled that the concept of earlier writers on esthetics, art and philosophy was to the effect that perfection of the body is coincident with perfection of the soul.

The association of diseases of the skin with leprosy may serve in explanation. Leprosy, one of the oldest diseases known to man, has long been exploited in the public mind and always has engendered fear and dread. Not uncommonly patients have remarked, "I feel like a leper." It is unfortunate that at this advanced date of civilization this anachronistic attitude is still perpetuated.**

Other Psychogenic Considerations

I HAVE never observed dermatitis factitia or self-produced lesion in malingering occupational dermatoses. Emotional disturbance, stress and strain incident to occupation, have not been conspicuous in my experience in causing cutaneous disease that may occur as a psychosomatic expression—urticaria, pruritus, localized and generalized neurodermatitis, lichen planus, etc. Indeed, the role of occupation would be difficult to evaluate unless the relation is clear-cut, as in the following instance, and in other catastrophic experiences of workers, as entrapped miners. A chemist engaged in an experimental project was late in arriving at his laboratory. Just prior to his arrival an explosion occurred, causing damage and injury to some employees. The chemist attributed this to his tardiness, and the same day he had a severe outbreak of urticaria that was incapacitating.

In appraising the foregoing discussion of the role of suggestion, consideration should be given to its possibility in relation to "Beware"[3] labels that a given substance is dermatitis-producing. However, I have never observed an occurrence in which such labels were incriminated or suspected. Mention was made of the favorable psychologic effect of protective, or barrier, creams. Perhaps this purpose is more uniformly achieved than is their real purpose—to prevent dermatoses.

Entirely for psychologic reasons a worker with a non-infectious or non-contagious skin disease, especially of the hands, is unlikely to be employed in food handling. Reference is not made to psychologic effect on fellow workers or on the public whom the employee may encounter in retail distribution. My reference is illustrated in the case of a girl employed in a wholesale bakery, packing cakes, buns and rolls in cartons, who developed dermatitis of the hands—an allergic reaction to cinnamon. Her employer would not permit her return to work until the last vestige of the dermatitis disappeared. I could cite many similar instances. I think the employer's attitude is necessitated by public opinion that opposes the eating of food which in process is handled by one with a disease of the skin. This is typified in Voorhees'[4] statement to employees (food handlers) who remonstrated against physical examination. His printed reply to their objections ended with the question, "Would you like to have your family eat produce

*It is interesting that, according to some writers, explanations of intractable pain in a "phantom limb" evolve around disturbance of the body-image concept: EWALT, J. R., RANDALL, G. C., and MORRIS, H.: "The Phantom Limb" (*Psychosom. Med.*, 9:118, 1947); KOLB, L. C.: "Psychiatric Aspects of Treatment for Intractable Pain in the Phantom Limb" (*M. Clin. North America*, 34:1029, 1950); KOLB, L. C., FRANK, L. M., and WATSON, E. J.: "Treatment of the Acute Painful Phantom Limb" (*Proc. Staff Meet., Mayo Clin.*, 27:110, 1952).

**It is apparent in fictional literature. Thus, "The Blanched Soldier," by A. Conan Doyle. Godfrey Ensworth, who was believed to have leprosy, when meeting his friend James Dodd, exclaimed, "Do not touch me, Jimmie. Keep your distance."

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packed, canned or manufactured by a man with eczema, scabies or a worse disease?"*

This attitude of the employer, I believe, is also necessitated by difficulty in interpreting sanitary and public health laws governing food handlers. Space will not permit review of such laws in effect throughout the United States, but the following Pennsylvania Bakery Law (Act of May 22, 1933, PL 912 as amended July 1, 1937, No. 535) will serve as an example: "No person who is afflicted with a communicable disease or skin affliction shall be employed or permitted to work in a bakery. Each employee shall be examined at least once every six months by a duly licensed physician, and the certificate of the physician showing freedom from disease or affliction shall be kept in the file of the bakery."

If literally interpreted, no person with a disease of the skin from any cause whatever would be permitted to be employed in any bakery, in any capacity, even though he might not handle food products. In actual practice most physicians would interpret this to mean infectious cutaneous diseases.

Nevertheless the possibility of different understanding of the law irrespective of the matter of medical judgment is pertinent.**

The wording of other Pennsylvania laws and city (Philadelphia) ordinances is difficult to interpret, and in some the wording is ambigious as illustrated by the following phrases—"open external lesion," "infections of the hands," "barber's itch."

Comment, and Additional Cases

THE FOREGOING discussion of psychogenic factors in diseases of the skin is applicable not only to the industrial worker but to all persons, since they are innate in mankind. The industrial worker is doubtless more susceptible to some of these psychogenic influences because of his close contact with others.

How far the industrial physician and nurse are concerned as to an employee bears a relation to sex, age, intelligence, and degree of contact with others. As stated, I believe girls and young women are more influenced in ratio to their intelligence, and their concept of their integument in terms of "precious skin."

It is a shortcoming of intelligence, not only of the industrial worker but of any person, to attribute an eruption to some preceding circumstance, something ingested, or some object handled. Such rationalization is based on *post hoc* conclusion and the fact that the person never previously had the disease and therefore it must be the cause.

In consideration of the influence of suggestion on other workers, and on morale in general, the industrial physician, depending upon the nature of his people, should not take too lightly the unjustified opinion of a worker that an eruption is occupational. For example, a woman, an employee, insisted that the itching of her legs was caused by fleas at her place of employment. The above mentioned "epidemics" of cutaneous complaint may be initiated in such manner, or by a change of process, a new installation, or, indeed, by the use of a new hand cleanser.

Regardless of how unreasonable the alleged cause, I believe proper treatment gains from a complete history, a complete examination of the entire skin, and a patient explanation to each person concerned. Performance of patch tests, although not indicated, may serve a good psychological purpose. This precludes testing with any substance which, in the concentration employed, may produce a positive reaction, an expression of primary irritant action.*** As previously discussed, the use of protective or barrier creams may also have a favorable psychologic effect. These procedures are comparable to the use of placebos in the practice of medicine.

Psychogenic Erythema—"Red Hands"

THE following case records concern workers whose hands rather suddenly became red. It could not be established that the redness was a stain, and attempts at its removal failed. Circumstantial evidence suggested psychogenic origin.

CASE 1 (Fig. 1), J. S., a white male, age 54, was employed as an automobile painter by the same company for 23 years. On November 1 he was spraying gray paint. To remove paint from his hands at lunch hour he used, for the first time, a new paint thinner. Enroute to his shop after lunch his hands became red, which frightened him. He thought the new thinner

*A comparable attitude of the public is related by Burgess, ("Born of These Years," 1951), who experienced difficulty in selling any article made by lepers. Other examples could be cited. A female employee in my office was given a slip as a gift by a patient receiving treatment for syphilis. The gift was spurned and burned. A patient refused to eat the food cooked by her domestic servant when informed the servant had a positive Wassermann reaction without contagious lesions.

**The following is a personal communication from NORMAN R. INGRAHAM, M.D., Deputy Commissioner, Department of Public Health, City of Philadelphia: "The employer is not expected to interpret whether an employee is infectious or employable in terms of his disease. The employer would be expected to refer the employee under suspicion to an examining physician, and the decision should be based upon medical or health consideration. I have seen many instances also in which the law has been abused, or in which regulations have been used as an excuse to get rid of an undesirable employee. The employer is often confronted with a difficult decision. Because of the feeling of many lay persons, other employees do not want to work with a person who has skin trouble. They continually harass the employer to get rid of this person. The Health Department receives some legitimate and quite a number of anonymous complaints along these lines from the lay public about employees in food handling establishments. It takes a courageous employer, under such circumstances, to continue to keep an employee who is causing him so much difficulty. His natural inclination is to get rid of him no matter what the cause of the skin difficulty."

***Adversely, a positive reaction may cause an unfavorable psychologic reaction. Invariably, in diagnosis of occupational dermatitis, the patch test is performed to determine if the person is allergic to the substance tested. A method of testing should be used to exclude primary irritant action. Inadvertently I performed tests in which positive reaction suggested primary irritant action. As a consequence the claimant became more emphatic in his belief that the tested substance was the cause of the dermatitis.

Fig. 1.
(Case 1): The hands of this worker suddenly became red, and remained so for 10 weeks. The redness resembled a stain, but this could not be proved. Evidence suggested a psychosomatic origin.

had "poisoned" him; he was apprehensive that it might have contacted his lips and in that way been ingested. Both he and his foreman retraced his work and manual contacts and excluded contact with red paint. The new thinner contained no red color. From information later furnished by the manufacturer, it was identified as methyl ethyl ketone (paint thinner) and contained no additives.

I examined this patient a month later. He had stopped work a few days after involvement of his hands. Both palms, and both surfaces of the fingers excepting the dorsa of the thumbs, were vividly red as though painted with red paint (Fig. 1). The redness was sharply margined on the sides and base of the palms and sides of the thumb. It did not disappear on pressure; there was no swelling and no inflammation. Several solvents and sodium hypochlorite failed to remove it. Other skin surfaces, including the soles, were normal.

He was anxious, apprehensive, and complained of inability to hold tools; they would fall out of his hands, which felt as if swollen, and that they were "flying away." He also complained of burning, twisting pain radiating up the forearms, which caused insomnia. He was preoccupied with the thought of poisoning from the new solvent and the probability of it having entered his system. This state of mind and symptoms became worse, necessitating referral to a psychiatrist.

The psychiatrist treated him from January 12 to April 29, at which time he was regarded as well and returned to work. The redness of the hands gradually disappeared in about 10 weeks. The first evidence was small rounded areas of normal skin on the palms. The psychiatrist reported no neurologic abnormality; his diagnosis was an anxiety neurosis arising as a fear reaction to the sudden appearance of the redness and the belief of poisoning. He definitely was of the opinion that the patient was not a malingerer, and his treatment was entirely psychotherapeutic.

What initiated the redness of the hands? It is believable that the solvent used as a hand cleanser caused some erythema, which continued and became aggravated as a psychosomatic expression.*

The insurance carrier recognized the patient's claim for compensation in consideration of the following: Uncertainty at onset whether the redness was caused by paint or other coloring material; uncertainty of what role the solvent played in causation. It is untenable that the patient initiated the redness by applying paint purposely and continued its application for compensation ends.

CASE 2, A. S., a 21 year old male. In his work as a silk screen painter for five years, he mixes basic pigments. He readily removes stain from his hands with a dry cleanser. On January 18 his hands became red. He could not remove the discoloration with the usually employed dry cleanser or with solvents. His only contact on that day was with yellow pigment. He had readily removed stain from his hands the day before.

Examination on January 23, showed reddish yellow discoloration of the palms and palmar surfaces of the fingers. A curious feature was its sharp margining on the sides of the palms and fingers and small rounded areas of normal skin on the palms. Sodium hypochlorite and solvents failed to remove the discoloration. Examination under the Wood's fluorescent lamp showed greater discoloration of the cuticles, suggesting a stain. The skin surface otherwise was negative. The corneal and naso-pharyngeal reflexes were completely absent. The patient wore a vividly red jacket and tie.

Four days prior to the appearance of the dis-

*Janet ("*Les Obsessions et la Psychasthenie Paris*," 1903, p. 33) stresses peripheral circulatory disturbance in psychopaths and correlates it with the peculiar subjective cutaneous symptoms of which they frequently complain—localized sensations of hot and cold, numbness, chilly sensations, etc. Many such patients are continually becoming affected with redness and pallor of the skin of various regions. I published—"Cutaneous Neuroses" (*J.A.M.A.*, 85:1683, 1925); "Psychogenic Aspects of Skin Diseases" (*J. Nerv. & Ment. Dis.*, 84:249, 1936)—instances of psychogenic erythema (vasomotor blushing, rubor essentialis, angioneuroticus) occurring on the face and other regions of the skin. This differs from blushing since it is more likely to reappear soon after its disappearance. Its occurrence at sites other than the face correlates Darwin's opinion ("Expressions of the Emotions in Man and Animals," New York, 1897, p. 314) that a person may blush on almost all parts of the body. The face is the most frequent site of blushing, since it is most concerned in expression of the emotions and is most objectified. An interesting correlation of psychogenic erythema of the hands is their importance to the industrial worker and their objectification as a means of livelihood.

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coloration he was called for military service. He said he passed both physical and mental examinations. The next day two members of the Air Force visited him, soliciting him for service in the Air Force.

On subsequent visits to me he remarked, "My hands are conspicuous." "People think it is contagious." "I do not wish to have it the rest of my life." "I hope it will not keep me out of the Army, they may object to it."

His employer said he was neurotic, "very nervous," and subject to brooding spells. He regarded him as intelligent but with a bad emotional background, and said that he had a "bad childhood," since his parents died when he was young. He had lived with each of five married sisters but had difficulty in adjustment. The employer could not account for the discoloration; no other worker ever had a similar discoloration, and none ever had difficulty in removing stains from his hands. At my request the employer produced a similar shade corresponding to the discoloration by mixing red, yellow and blue pigment. He placed this mixture on his hands and readily removed it.

The patient had not lost time from work and made no claim for compensation. The subsequent history was obtained from his employer. The patient applied for service in the Air Force but was not accepted—not on account of the discolored hands but for "something of a personal nature." The discoloration of the hands became more pronounced before its disappearance about a month after onset. He was finally accepted for other service in the Army.

Four years prior to my examination on January 23, I had treated this patient for a dermatitis of the hands which I attributed to turpentine used to remove stain. Significantly my discharge note was, "The dermatitis has disappeared, the hands are red, probably vasomotor in origin. The patient said he has always had a tendency to have such redness." In consideration of prior observation of redness of the hands, the emotional background, and the circumstances at the time of the appearance of the discoloration, the latter was regarded as psychosomatic. Some staining with yellow pigment doubtless occurred to account for the peculiar yellowish red discoloration.

The following cases concern additional causes of red hands of occupational origin. I am unacquainted with any record in the literature of these forms of occupational dermatoses.

VASOMOTOR INSTABILITY—Case 3 (Fig. 2), a 32 year old worker in an abattoir. He washes bacon bellies in fresh water, and in addition cleanses vats with a hose and water. His hands are wet throughout the work period; he contacts both hot and cold water. Rubber boots and apron are worn, but not gloves.

Soon after starting this work 10 months since, his hands became red, a condition which has

Fig. 2.
(Case 3): A worker in an abattoir whose hands were alternately exposed to hot and cold water. The redness of his hands was regarded as an indication of vasomotor instability.

persisted. There is some improvement over the week-ends. At times he has tingling and burning of the hands.

Examination showed redness of the entire hands as though stained with a red dye. The redness did not disappear on pressure; there was no swelling, no dermatitis. He said his face blushes easily, and he had dermatographia. There was no complaint of easily induced cold feet; examination of the latter was negative; there was normal pulsation of the dorsalis pedis arteries.

The redness was regarded as of vasomotor instability and has been called chilblain circulation. The redness and subjective symptoms are analogous to such symptoms occurring in frostbite and in chilblain. Change to dry work was recommended but not entailing exposure in the refrigerated department. I have seen similar changes affecting the hands of workers who go in and out of cold storage compartments.

OXALIC ACID. Case 4 (Fig. 3), a white woman, employed in cleaning vestibules of railroad coaches. This was done with a brush saturated with a 5.3% solution of oxalic acid. She wore cloth gloves that became wet with the solution. After working three days she complained of severe tingling, burning, and sense of soreness of the fingers which was sleep-disturbing.

Examination disclosed mild redness of the hands with discoloration of the fingers. What was most conspicuous was a purplish red discoloration of the fingers. The proximal border of this discoloration on some fingers was sharply margined. There was no swelling, and no dermatitis. The discoloration resembled a stain, but there had been no contact with any coloring matter, and attempts to remove it failed. The

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Fig. 3.
(Case 4): The patient was exposed to solution of oxalic acid and complained of severe tingling and pain of fingers, with purplish red discoloration.

subjective symptoms were more pronounced than suggested by objective change.

The subjective symptoms of this patient have been noted by other writers.[5,6] Although I am unacquainted with any recorded explanation, the following is reasonable. Oxalic acid readily combines with calcium; through local action the calcium-potassium ratio of the tissues is disturbed, producing potassium nerve stimulation. This explanation is consistent with the conclusions in Klauder and Brown's[7] study of the role of the nervous system and of the calcium-potassium ratio in altering cutaneous irritability in the rabbit.

Oxalic acid is toxic and an irritant to the skin beginning at about 5%. I believe, however, weaker concentration may produce the listed subjective symptoms and apparently, too, vascular changes in the absence of dermatitis. Report of cynosis of the hands[6] after exposure to oxalic acid is in accord with the purplish red discoloration of the fingers of my patient.

Although not of occupational causation, but in order to complete the discussion of red hands, more especially the palms, mention can be made of the following: Redness of the palms (also the soles accompanied with sensory disturbances)—the "pink palm of Fowler," a toxicologic reaction to ingestion of arsenic.[8] Palmar erythema (so-called liver palms) accompanying cirrhosis of the liver.[9] Palmar erythema associated with pregnancy.[10] The hereditary type of palmar erythema.[11]

(1934 Spruce Street.)

References

1. STAINBROOK, E.: Psychological Considerations in the Rehabilitation of the Cardiac Patient in Industry. *Indust. Med.*, 19:528 (November) 1950.
2. MORIARTY, J. D.: Psychiatric Casualties in Industry. *Indust. Med.*, 20:538 (December) 1951.
3. NALE, T. W.: Current Method of Determining Safety in the Application of New Chemicals. *Indust. Med.*, 20:501 (November) 1951.
4. VOORHEES, R. L.: Human Nature and Personnel Management. *Indust. Management*, 59:78, 1920.
5. WHITE, R. P.: The Dermatergoses or Occupational Affections of the Skin. 4th Ed., H. K. Lewis Co., London, p. 286.
6. GROLNICK, M.: Case of Early Gangrene due to Oxalic Acid Immersion. *New York J. Med.*, 29:1461, 1929.
7. KLAUDER, J. V., and BROWN, H.: Experimental Studies in Eczema. *Arch. Dermat. & Syph.*, 19:52, 1929.
8. BROOKE, H. G., and ROBERTS, L.: The Action of Arsenic on the Skin as Observed in the Recent Epidemic of Arsenical Beer Poisoning. *Brit. J. Dermat.*, 13:121, 1901.
9. PERERA, J.: A Note on Palmar Erythema. *J.A.M.A.*, 119: 1417, 1942.
10. LOFGREN, R. C.: Erythema of Palms During Pregnancy. *Arch. Dermat. & Syph.*, 46:503, 1942.
11. LANE, J. E.: Erythema Palmar Hereditorium. *Arch. Dermat. & Syph.*, 20:444, 1929.

The Writing Between the Lines

TAKE A LOOK at your handwriting. The length of your stroke, where you dot your *i*—these things are not a matter of chance. According to graphanalysts (often called graphologists), the characteristics of your handwriting are products of the law of your personality. As such, they tell a lot about you. No two handwritings are ever alike. They are as individual as fingerprints. In the hands of an expert, handwriting gives a pretty clear picture of the personality which produced it. That's why handwriting analysts like Cleveland's Hazel Hutchison are being called on frequently these days to help industrial personnel and placement men find out more about the people they must fit to jobs. Graphanalysis can reveal important personality traits. Is the individual honest? Is he emotionally stable? Is he intelligent enough to follow instructions on a given job? Can he endure monotony, present on some tasks? How will he react in an emergency? Is he liable to have trouble getting along with other employees? Does he have leadership qualities? These are some of the things you can find out by handwriting analysis. And while it doesn't suggest that you forget about thorough pre-placement physical examinations, graphanalysis can tell you important facts about an individual's health—particularly those concerned with blood pressure and metabolism. Even more surprising is the graphanalyst's ability to identify tendencies before they become physically apparent. Addiction to drugs and alcohol is evident in handwriting. So are suicidal tendencies. So are incipient brain diseases and paralysis.

—From "Graphanalysis: A New Placement Tool?" in *Occupational Hazards*, 14:10 (August) 1952.

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The Occupational Hazards of Boxing

— Medical Recommendations for Control —

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THE New York State Legislature passed a law in 1948 which created a Medical Advisory Board, in the New York State Boxing Commission. In the fall of that year, Governor Thomas E. Dewey appointed this Medical Board, which was made up of nine specialists. The law specifically outlined the duties of the Board. Their primary responsibility was to prepare and submit to the State Boxing Commission for approval a set of medical regulations and standards for the physical examination of profesional boxers and wrestlers. The law further stated that the Board should continue to serve in an advisory capacity to the Commission, and from time to time prepare and submit additional medical recommendations, such as in the judgment of the Board members would further safeguard the physical welfare of professional boxers and wrestlers; that it recommend qualified and well-trained physicians to conduct the physical examinations of professional boxers and wrestlers as provided by the rules; and that it propose to the Boxing Commission a schedule of fees to be paid to these physicians.

The new Board held numerous meetings, reviewed the world medical literature on the medical aspects of boxing, consulted many authorities, promoters, and managers, and held conferences with many recognized ringside physicians. As a result of its labors, the Board proposed a set of medical rules and standards, which have proved to be significantly beneficial in the field of professional boxing.

The members of the Board as appointed by Governor Dewey were: Drs. Eldridge Campbell, George Winthrop Fish, M. Ralph Kaufman, Henry N. Kenwell, Robert L. Levy, Richard H. Lyons, John M. McLean, Charles Muzziacato. In addition Dr. Frank R. Ferlaino, an Industrial Medical Consultant, was appointed Chairman of the group.

The medical rules and standards developed by these physicians as the result of their studies, research and deliberations, were approved and accepted by the New York State Boxing Commission only after two successive deaths and after an interval of delay to March, 1950. The delay was due to the fact that the boxing authorities feared these medical improvements and innovations, modernizing medical examinations and procedure, would hurt boxing. This was an erroneous concept, for many physicians from other states have praised these new scientific medical procedures in the field of sport.

The importance of instituting medical safeguards to protect these athletes becomes all the more evident when it is realized that there have been some 87 deaths in boxing, the world over, since 1946. There were three deaths in New York State within a period of 19 months. These three deaths and two other earlier deaths in New York State made a total of five within three years. Also, one boxer was permanently paralyzed.

All physical contact sports naturally have an element of risk, but medical safeguards can reduce accidents to a minimum. However, to achieve this result, the cooperation of all persons connected with boxing is necessary. The New York State Medical Advisory Board alone cannot achieve reform on a national scale. More effective medical supervision of boxers needs to be carried out on a nation-wide basis. Standardized medical procedures for all boxers in all states would bring about more effective precautions and permit a systematic record of each boxer's physical condition, and at the same time direct expert attention to particular boxers who might be injured in action.

Recommendations

AFTER a three-year study, the following recommendations are offered as worthy of adoption by the various state boxing commissions:

1. The use of eight-ounce gloves was considered by the board physicians, but no action was taken because of the desire to study the problem carefully. The improvement of the present gloves and the inner padding was deemed a major research problem. The surface material or leather should be water and moisture repellent. This is necessary because the gloves become wet and soggy after several rounds. The padding inside the gloves should be fixed so that it cannot shift, and the padding should be constructed so that the gloves cannot be "broken." This means that the gloves cannot be twisted and bent so as to dislodge the padding from the punching or knuckle area.

2. The unnecessary and recurrent lacerations about the eyebrow, which mar many a boxing match, can be reduced by properly constructed gloves which have more elasticity and resiliency than the present type of gloves used in the ring. Old, cracked, fissured gloves should never be used, as they produce lacerations quickly.

3. Whether new, well-constructed, lightweight headgear will be necessary in boxing, remains to be determined. Unless the number

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of deaths in the ring is greatly reduced by improved boxing gloves and improved mats under canvas, a strong possibiltiy remains that headguards may become a virtual necessity. Headguards are used in baseball and football as well as hockey and other sports, yet, when this is mentioned in conjunction with boxing, there is complete opposition to the use of this type of protective equipment even though it is acceptable for practice purposes.

4. The eight-second compulsory count after a knockdown should be enforced. It gives the boxer who slips to the floor or who is knocked down a chance to regain his breath, equilibrium, senses, and muscular and nerve coordination. Three knockdowns in any one round should automatically dictate that the bout has been won. Six knockouts in the record of any boxer should automatically prohibit him from immediate further participation, and a thorough medical checkup should be mandatory.

5. A new safer mouthpiece has been described by Commander H. J. Towle, Jr. of the Naval Dental School. It is not easily dislodged and is made of thin rubber which fits snugly over the upper teeth. This is a great improvement over the present hard stock dental guard used by boxers. A good well-fitting resilient guard should be made for the individual.

6. An accident survey committee should be established to carry out continuous study of all forms of accidents as they occur in boxing, and to make a close analytical study of each death. Recommendations toward prevention may then be proposed.

7. Two physicians at the ringside, one for each boxer and each corner, appear to be necessary. If one boxer is injured in a preliminary match, a physician can go to the dressing room with him, make an examination, and give first aid. This will not leave the ring without a physician for the next bout. In addition to a stretcher under each ring, there should be a portable oxygen tank and mask available for ringside emergency use. Oxygen has been lifesaving in cases of anoxia, knockouts, unconscious states, and exhaustion.

8. A well-equipped office or room should be available at each arena where the physician can give emergency treatment, sew up lacerations, make examinations, and carry on all the other essential and emergency medical measures.

In this private room the physician could conduct the all-important medical examination and inspection after a bout. More careful observation of athletes after they leave the ring will be helpful in preventing collapse, shock, and death. Many young athletes are known to have left the arena without adequate medical attention and later have had to seek medical emergency care at nearby hospitals.

9. To avoid injury in any contact sport, an athlete must be in hardened physical condition. Physicians might well take more interest in physical fitness and in training procedures. Many athletes do not know how to train properly, and the dangers of broken, interrupted and inadequate training should be stressed. Many cases of first-round knockouts are reported to be due to either poor matching of the athletes or to inadequate physical training to achieve physical fitness for a sport such as boxing.

10. Educational programs on the importance of proper rest, good living habits, and well-balanced diet, should be carried out. Victories and championship physical fitness cannot be achieved by drinking beer, smoking cigarettes, and incomplete physical training routine.

11. The 30-day period of suspension after a knockout is a good rule. At the end of this period the boxer must be carefully re-examined, as outlined under the rules and regulations. In this way the cumulative effect of superimposed injury is avoided and the punch-drunk or traumatic encephalopathy syndrome can be prevented from occurring so frequently as in the past. Trauma to the eyeball is said to be due to thumbing with the heavy thumb of the present boxing gloves. In modern gloves the thumb is now curved inward toward the mid-palm, making thumbing an impossibility. Another measure which has been proposed is the immobilization of the leather at the tip of the thumb to the lateral side of the index finger. This also would prevent the pernicious habit of thumbing which has caused some blindness and many cases of detached retina.

12. A well-equipped, uniform emergency medical and surgical kit is necessary, and important. It has already been made standard in several European countries. The various state boxing commissions should adopt this safeguard, which will benefit both the preliminary fighter and the champion or main-eventer.

The British Boxing Board of Control as early as 1929 began to distribute a brochure to the ringside physicians which is entitled "Hints on the Duties of Medical Officers at Boxing Tournaments." It describes in detail the duties of the medical officer at the ringside during a contest, the duties after the contest, hints on the treatment of cuts about the eyebrows, and general points on the handling of a knocked-out boxer. Another leaflet, issued by the Medical Sub-Committee of the Boxing Board of Control, is entitled "Memorandum on Immediate Treatment of a Boxer After a Count Out."

Dr. L. B. Chenoweth has recommended the routine use of skull x-rays in order to detect individuals who have variations in the thickness of the skull bones, decreased density, or anomalies. At the University of Cincinnati it was found that several boxers had much thinner skulls than the average, and the opinion was expressed that fatalities can be reduced by excluding such athletes from boxing because the head is the most desirable target. Dr. Giuseppe La Cava, of the Sporting Federation in Rome,

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Italy, has recommended the routine use of skull x-rays as a favorable procedure to make the sport safer for contestants, but the matter has never been given any consideration by physicians in the various state boxing commissions. Routine post-bout x-ray examinations of knocked-out boxers might prove of value to determine latent skull injuries.

The seconds at the ringside perform important medical duties. They provide certain medications to stop bleeding, to reduce periorbital swellings, to approximate lacerated wounds quickly. Physicians at the ringside should give first aid instructions to all individuals who act as seconds, as there have been many instances of inability to stop bleeding, of infection of wounds, and of other errors in first aid therapy which might prove harmful to contestants. Perhaps seconds should be licensed on the basis of an examination; indeed, some physicians have thought that one of the seconds for each boxer in each corner should be a physician.

In August, 1949, the Illinois State Boxing Commission released to the press the adoption of a complete medical service to the boxers in an effort to "hold down to an absolute minimum" boxing-ring casualties. Modern medical equipment was to be installed in a remodeled examining room in the commission office. More rigid medical requirements were contemplated to protect the health and safety of boxers. It was pointed out that almost all boxing commissions gave these athletes only a simple examination on the day of the fight. In the future the examination would be more intense, and complete medical records would be kept.

The Illinois Commission also reported that, from then on, a boxer who was knocked unconscious would be barred for six weeks and must pass a more rigid physical examination. Encephalogram studies would be used as often as necessary. This was considered to be an important safety program. It was a definite advance, and other states should follow this example and also perhaps undertake a program like the more comprehensive one of the New York State Athletic Commission, as these athletes are entitled to the best occupational medical program that can be devised. The state boxing commissions which derive a considerable revenue from boxing should underwrite the costs of these medical programs, rather than expect the managers and promoters to carry them.

The editorial on "Safeguards in Boxing" which appeared in the April 22, 1950, issue of *J.A.M.A.* welcomed medical safeguards of this kind, and urged that, because of the hazards peculiar to boxing, every effort be made to provide the best possible medical supervision. In an editorial in the December, 1951, issue of *Industrial Medicine and Surgery* it was pointed out that professional boxing is an industry, and the nation's most dangerous trade. The blindness of the promoters and controllers of professional boxing is deplorably self-evident. The boxer is entitled to due safeguards in his trade. The medical remedy is much needed. The skilled physician, clothed with authority, is the boxer's best friend. The need for an adequate protective medical program is urgent to save the sport.

New York Regulations

THE MEDICAL Advisory Board Regulations and Standards adopted by the New York State Athletic Commission for the physical examination of professional boxers and wrestlers have been considered a significant medical advance in the field of sport medicine. A condensed version of these rules and standards follows:

I. INITIAL AND ANNUAL EXAMINATION:

A. All boxers and wrestlers, before being licensed by the State of New York Athletic Commission, are to be given an examination only by an approved Medical Advisory Board Physician. This licensing examination and any or all known laboratory procedures that may be necessary, are at the discretion of the physician. The examination will be mandatory with the yearly license renewal.

B. Adequate facilities (examination room) shall be provided the Medical Advisory Board approved physicians for the conduct in private of their examinations, and the results of such examinations are to be held strictly confidential.

II. PRE-BOUT, RINGSIDE, AND POST-BOUT:

A. Contestants who will engage in a championship or important match shall be given a physical examination five days prior to the date of the contest. This examination is to include as many of the laboratory procedures as the examining physician decides are necessary, and is to be performed in New York State by a qualified Medical Advisory Board approved physician, as outlined in (IA).

B. At the noon weighing-in, on the day of the bout, and later in the evening of the day of the bout just prior to entering the ring, all contestants shall receive a medical examination. The medical reports of these examinations will be kept on file in the office of the Medical Advisory Board.

C. 1. The State Athletic Commission, at its discretion, may, when it deems it advisable, request the Medical Advisory Board to appoint a panel of three approved physicians to re-examine a contestant when an illness or injury occurs or when a question arises as to the physical ability of a contestant to engage in a scheduled bout, and the recommendation of the panel shall be final. The reports of the medical findings shall be promptly filed with the Medical Ad-

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visory Board of the Commission.

2. The ringside-approved Medical Advisory Board physician, at the request of the Deputy Commissioner-in-charge or referee, shall be privileged to step up into the ring between rounds, as often as he may deem necessary during a bout.

3. When in the opinion of the ringside physician, a contestant has received severe punishment and is in danger of serious physical injury, he shall advise the referee that the contest be terminated.

D. 1. All contestants, who have suffered severe injury, or who have lost a contest by a knockout, will be examined at the completion of said contest by the approved ringside physician who will render any emergency treatment necessary, recommend further treatment or hospitalization, and submit a report to the State Athletic Commission within 24 hours, and subsequently thereafter as necessary.

2. If the injury has been severe and the boxer has not been admitted to a hospital, the boxer, on the order of the ringside physician, shall undergo an examination as outlined under (IA) within 24 hours.

3. The ringside physician may direct that a contestant or manager remain in the arena after the contest for such a period of time as he may deem advisable, in order that necessary emergency medical care and advice to safeguard the health of the contestants may be given.

III. INJURY OR ILLNESS WHILE TRAINING:

A. If a boxer suffers injury or illness, he or his manager or his physician shall report within 24 hours, to the State Athletic Commission, the nature of the injury or illness, and the State Athletic Commission shall authorize a Medical Advisory Board approved physician to make an examination of the said contestant and obtain necessary x-rays and other laboratory data as outlined under (IA). If the injury occurs while training for a bout, the same regulation applies, and the facts and nature of the injury or illness shall be submitted to the State Athletic Commission which may, in turn, authorize an independent examination by an approved physician.

IV. REPORTS AND RECORDS:

A. Medical forms are provided for the various types of examination. Special medical forms are provided for annual medical examination, for pre-bout examination, brief accident report for minor injuries, detailed accident report for serious injuries, medical certificate form to explain physical defects to examining physicians.

B. Each individual contestant shall have available at all times his license card, and on the back thereof there shall be noted the record of any knockout or injury, in and out of the ring, which he may have suffered during the preceding year.

C. Each individual contestant shall surrender his license card to the Deputy Commissioner-in-charge if the ringside physician notes any knockout or severe injury that he thinks sufficient to warrant keeping the contestant under suspension until further medical examination as under (IA).

D. All records must be filed with the Medical Advisory Board of the New York State Athletic Commission.

E. Any contestant who has been frequently knocked out or who has lost six consecutive fights shall be subject to medical investigation and will be required to submit to the examination as specified under (IA) upon recommendation of the State Athletic Commission. With regard to knockouts the procedure outlined in Section II (D1) is also mandatory.

These Medical Rules and Regulations will be modified and revised from time to time as required by law and experience.

MEDICAL EXAMINING ROOM: THE MEDICAL ADVISORY BOARD OF THE NEW YORK STATE ATHLETIC COMMISSION HAS SET UP A FULLY EQUIPPED MEDICAL EXAMINATION ROOM, X-RAY MACHINES, FLUOROSCOPE, ELECTROCARDIOGRAPH, ELECTROENCEPHALOGRAPH, OTOSCOPE, SNELLEN EYE CHART, BLOOD PRESSURE MACHINES, ETC., FOR THE PURPOSE OF CONDUCTING MORE CAREFUL AND MORE THOROUGH MEDICAL EXAMINATIONS AS OUTLINED ABOVE.

Summary

NEW YORK State has made a singular medical contribution to sports by enacting a law which created a Medical Advisory Board composed of a group of nine physicians who were authorized to institute medical safeguards to reduce the high incidence of deaths in the ring and to prevent accidents. Medical regulations and standards were proposed by the Medical Advisory Board and adopted by the New York State Boxing Commission. These regulations and standards recommend that boxers and wrestlers be given more thorough physical examinations before, during, and after bouts. They urge the use of modern laboratory procedures including x-rays, electrocardiograms, electroencephalograms and all other known laboratory measures, and recommend an improved individual unit medical file for each boxer.

(580 Park Ave., New York City.)

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Experience Accumulated in Three Years of an Occupational Medical Clinic

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THE purpose of this paper is to furnish an example of what can be achieved through the coordinate effort of clinicians and students of toxic occupational environment. It is our belief that mutual benefit will ensue if those concerned with the causes of work-related illness will make use of local teaching hospital facilities and existing university or state agency units qualified to evaluate toxic exposures. To this end a joint effort of the Medical Department of the Massachusetts General Hospital and the Division of Occupational Hygiene of the Massachusetts Department of Labor and Industries is here reported.* As actual work was begun in February, 1949, we are submitting the data collected in the past three years. It is of interest that the American Medical Association in a recent survey of industrial medical facilities in the United States of America could find no other comparable activity.**

The stated purpose of the Occupational Medical Clinic is to study the pathogenesis, i.e., the mechanism, of disease production following toxic work exposure. Study of the literature reveals that, with exceptions such as silicosis, lead poisoning, and perhaps beryllium poisoning, there is a relative lack of knowledge of behavior of toxic materials in the human body, certainly among clinicians. Fifteen years of work in general medicine have convinced us that a primary problem is lack of clear knowledge of etiology. For example, increase in the number of chest x-ray studies done on an individual or a group has led to the accumulation of an at present meaningless pool of cases usually called idiopathic pulmonary fibrosis. It may be that scrupulous studies by competent industrial hygiene engineers will show a number of these x-ray densities to be due to inhalation of dusts. Bolder and wider use of blood studies in diagnosis of vague illness or in medical control of well workers exposed to known bone marrow depressants has already brought to light a number of anemias often in the past called iodiopathic. There remain certain anemias currently termed iodiopathic, a term of clinical confession that no cause has been found. It is entirely possible that the fact that certain chemicals have been inhaled may prove a relevant factor after careful epidemiologic and analytic study. For such studies of cause we rely on the technical staff of the Massachusetts Division of Occupational Hygiene, and want to acknowledge here the help of Mr. John Skinner, until recently Director of this Division, and Dr. Harvey Elkins, Chief of its laboratory, and their staff. We have called on the staff of the Division of Occupational Hygiene in 56 separate cases in the three years on which this report is based.

In addition to the work on possible causes of disease, study of various forms of treatment of definitely established worker illness is undertaken by the Occupational Medical Clinic. Reaction to therapy may be directly related to the mechanism of the disease. For instance, the present interest in complexing agents as a rationale for handling the symptoms of lead poisoning may prove of importance in study of lead storage and excretion.

The Massachusetts General Hospital has a tradition in the field of occupational disease study. A so-called Industrial Clinic was begun in 1912 by Dr. David L. Edsall, who later became Dean of the Harvard Medical School. Dr. Edsall and later Dr. Wade Wright kept this work active until the late 1920's. During the early 1920's Dr. Joseph Aub and his associates were studying the mechanism of lead poisoning at the Massachusetts General Hospital, thus creating much interest in the hospital in this important industrial disease. Among Dr. Aub's associates were Dr. Lawrence Fairhall, of the Industrial Hygiene branch of the Federal Public Health Service, and Dr. Donald Hunter, of the London Hospital, who has continued his interest and work in this field, as has Dr. Aub. Both Dr. Aub and Dr. Hunter were helpful in starting anew in 1947 active work in Occupational Medicine. It has been our experience, and this background confirms the fact, that there must be one individual with keen interest in the work who is frequently in the hospital, readily accessible for consultation, and quite prepared to go to enthusiastic trouble in frequently fruitless searches for correct occupational etiologic relationships. So much for the plan, purpose and background of this enterprise.

THE machinery of operation of the Occupational Medical Clinic is simple. An Advisory Committee was appointed at the outset of the enter-

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Presented at the Thirteenth Annual Meeting of the AMERICAN INDUSTRIAL HYGIENE ASSOCIATION, Cincinnati, April 22, 1952.

*This work has been supported by the National Institute of Health, Research Grants Division of the U.S. Public Health Service.

**BROWN, E. W.: Undergraduate Teaching of Occupational Medicine in American and Canadian Medical Colleges. *J.A.M.A.*, 145:926 (March 24) 1951.

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prise. The membership includes the Medical Director of the hospital, the senior hematologist, dermatologist, chief of the pulmonary clinic, one of the senior physicians interested in occupational disease, and the physician in charge of physical medicine. Funds for this work are available to us through a grant awarded by the National Institutes of Health, Research Grants Division. Such funds were sought to enable complete study of diagnostic problems and to avoid the complexity of medicolegal claims settlement. We try scrupulously to study our patients with an outside physician of the sick worker's choosing. It is not our idea to care for the patient except insofar as such therapy is relevant to our study. We plan to supply the family physician with data he may need for continuing care of the worker and for use in settling compensation claims should they arise. Every effort is made to keep our research studies out of court but, since in Massachusetts medical records may be subpoenaed, this is not entirely possible. Thus far we have only been hampered by medicolegal aspects of the case under study in two instances.

The work goes forward in three ways.

TABLE I.
TYPES OF SERVICE

	1949	1950	1951	Total
Outpatients	28	56	100	184
Inpatients	12	12	29	53
Consultations	24	26	49	99

Once a week an out-patient clinic is held for ambulatory patients. In addition, we see patients on Saturday morning by appointment, if necessary, to avoid the loss of a patient's day's work. Secondly, if a patient is seriously ill or a plan of study requiring hospitalization has been outlined, he may be admitted to the hospital. In general, the patients are admitted to the wards. Semi-private rooms are occasionally used if a patient is not very ill and special studies which might disrupt the work of a busy ward are to be undertaken. Thirdly, we often see worker-patients with other physicians in this or other Boston and suburban hospitals and, as required, studies are planned and carried out by the Occupational Medical Clinic (See Table I). An example of such cooperative effort was the study of the use of sodium citrate as treatment for lead poisoning, several of the patients being cared for in a hospital 10 miles from the Massachusetts General Hospital. Initiative and direction were supplied by the Occupational Medical Clinic; environmental air analysis, urinary studies of lead and coproporphyrin excretion were done by the members of the staff of the Massachusetts Division of Occupational Hygiene.

Since it is certainly wise to use existing facilities in doing special studies, no attempt has been made by our clinic to set up means for certain complicated and crucial measurements. For instance, we have sent biological material to Cholak at the Kettering Laboratory for beryllium analysis by spectrographic study. We have also been much interested in the usefulness of pulmonary function studies to correlate exposure history, clinical story and x-ray picture in establishing correct etiology. For this work we have relied on Whittenberger and his associates in the Department of Physiology at the Harvard School of Public Health.

Where do we find the cases to study?

TABLE II.
SOURCES OF REFERRALS

Massachusetts General Hospital staff	87
Outside physicians	42
Division of Occupational Hygiene	15
Patients	12
State agencies	7
Lawyers	4

Proper clinical material was discouragingly slow in appearing at the start of this project, and we feared having to return some of our grant money unspent at the end of a year, a serious prospect. However, this did not happen. Table II shows the sources of referrals. It is perhaps understandable that not a single case was referred from a plant physician or an insurance company. We wish circumstances might change this some day. In studying our figures, it is important to know that we take no dermatological cases except a rare single consultation for opinion on exposure, and no surgical cases. We do emphasize in our own hospital that we are ready to give consultation opinion on any service, and have been called to surgical, neurological, pediatric, eye and psychiatric wards.

Table III shows what might be expected in occupational disease diagnosis because of the distribution of industries in Massachusetts.

TABLE III.
OCCUPATIONAL DISEASES—BY DIAGNOSIS

		No. of Cases
Beryllium poisoning		35
Blood dyscrasias		17
Benzol in origin	13	
Miscellaneous chemical	4	
Silicosis		13
Lead poisoning		11
Carbon tetrachloride poisoning		9
Talc pneumoconiosis		1
Asbestosis		3
Parathion effect		2
Silicosis with tuberculosis		2
Tetryl effect		1

Pulmonary diseases of industry, blood dyscrasias of chemical origin, and some lead poisoning will in all likelihood continue to arise, partly from ignorance, partly from apathy, partly from the variation in biological response to toxic insult.

As mentioned in introducing this work, we are intrigued by trying to establish correct etiology of chest x-ray densities not due to tuberculosis, cancer or heart disease. There are many more of such diagnostic problems currently because of chest x-ray surveys done by

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industries and communities. We have been able to follow a few cases thoroughly by lung biopsy with pathological and analytic study, pulmonary function data, and clinical follow-up. This has proved fruitful in pushing differential diagnostic methods—for example, in distinguishing the pulmonary manifestations of chronic beryllium poisoning from those of sarcoidosis.

Pulmonary function studies before and after therapy have proved worthwhile in helping to establish not only the usefulness of a given form of treatment but also in pushing understanding of a mechanism of an industrial insult. One example of this was the failure of ACTH to improve the status of a case of asbestosis and a case of talc pneumoconiosis because of irreversible pathology, while dramatic and measurable clinical improvement came from the use of the same material in certain cases of chronic beryllium poisoning where at least some of the pathology could be changed. Thus, what might have been clinical impressions were substantiated by pre- and post-treatment pulmonary function values.

Table IV shows the spread of cases we are asked to see in the Occupational Medical Clinic.

TABLE IV.
MISCELLANEOUS OCCUPATIONAL PROBLEMS

Brucellosis (porcine)	Ethylene dichloride exposure
Cadmium exposure	Metal fume fever
Compensation neurosis	Pulmonary fibrosis by x-ray in textile workers
"Cotton fever"	Thallium exposure
Cyanide effect	Turpentine poisoning
Erysipeloid	

Table V identifies some problems we have been asked to see but which we believe from exposure history, substantiated when possible by qualitative and quantitative study by the Massachusetts Division of Occupational Hygiene, does not support a diagnosis of job-incurred illness.

A by-product of the work of the Occupational Medical Clinic is the opportunity to put without formal teaching before physicians at all levels of training—medical students, house officers, visiting physicians, family physicians—the wise appraisal of possible work-incurred illness. This year, at the request of a student, a Fourth-Year elective in Occupational Medicine has been arranged. We are asked to present the clinical point of view of industrial illness at hospital medical meetings. At such meetings we have an opportunity to urge accurate appraisal by qualified industrial hygienists of the sick worker's exposure. A second excellent result of the work of this clinic is to give the physician working in the Occupational Medical Clinic a firm link with clinical activities. Physicians who have visited us remark on the real problem of keeping affiliation with the practice of medicine if the decision is made to embrace occupational medicine as a career.

TABLE V.
DIAGNOSTIC PROBLEMS

Probably Non-occupational:
Acute nephritis (naphthalene)
Chronic cor pulmonale (chromic acid mist)
Collagen disease (slight radium exposure)
Hemolytic anemia (paraphenylene diamine)
Polyneuritis (variety of chemicals including thallium)
Pulmonary fibrosis by x-ray (cotton dust)
Sarcoidosis (textile mill dust, abrasive dust)

This is not a large enterprise. Occupational disease is not reportable in Massachusetts. For this reason and, as suggested, since plant physicians and insurance companies do not use a clinic of this character, our present experience is not an accurate reflection of the incidence of industrial illness in this area. Thus far one physician has carried the work. It has seemed best to study a small number of problems, using what clinical material comes to hand. However, we have no notion of not changing our ways as new ideas and opportunities arise.

The work of the Occupational Medical Clinic at the Massachusetts General Hospital has been presented in some detail, in the real hope that other physicians and industrial hygienists may consider initiating comparable projects suited to their special setting.

(Cambridge 39.)

Diagnosis Via TV

SOMETHING new has been added in the worlds of television and medicine, according to an article printed in "Today's Science and You." A combination of X-ray and TV has been created so that doctors can now study on the television screen hearts and lungs, veins and arteries in action. What's ever more remarkable about this is the fact that a doctor can call in for consultation specialists from all over the country who need only travel as far as their own television sets to see the patient.

—From "Pertinent Paragraphs" in *J. Kentucky State M. A.*, 50:8 (August) 1952

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Chronic Cadmium Poisoning

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ACUTE cadmium poisoning induced orally by cadmium medications or foods contaminated by cadmium as well as occupational intoxications due to cadmium vapors or dust have been known for approximately a century. The clinical syndrome is similar to other intoxications due to irritative fumes, with symptoms of coughing, dyspnea, cyanosis, toxic pneumonia frequently leading to lung edema and fatal termination. The gastro-intestinal tract is also affected, with vomiting, colics, and diarrhea. Nasal, pulmonary and gastro-intestinal hemorrhage have been observed.

In 1940 the Italian investigator Mancioli reported ulcers of the nose and pharynx in a Milano plant engaged in electrolytic cadmium metal plating. He attributed the condition to chronic cadmium intoxication. In 1942 the French authors Nicaud, Lafitte and Gros observed a curious bone lesion among older cadmium workers in an alkali accumulator plant. The lesion, designated as striés osseuses, affected the scapula, pubic bones and femur, and corresponded to the Milkman syndrome. In the following years of 1942-46 we are again indebted to the French authors Lebourg, Valetas and Barthelemy for reports on the occurrence of a yellow cadmium fringe on the neck of the teeth, which they interpreted as a reliable alarm sign calling for the elimination from further cadmium work. In 1948-50 Friberg, who deserves special mention for his work on chronic cadmium poisoning, succeeded in identifying further features of this chronic intoxication among workers of alkali accumulator factories: anosmia, the occurrence of a protein body of low molecular weight in urine, an increase of ESR, and emphysema. In Germany, we have also had occasion to see chronic cadmium poisoning and to supplement the familiar clinical data with some new observations.

THE following is a report on the present status of our knowledge on the symptomatology of chronic cadmium poisoning and on some remarkable features of a case of this disease observed by the author. As were the French cases and those of Friberg, mine was also that of an alkali accumulator factory worker.

Almost all of my cases complained of rhinitis, tickling and soreness of the nose, a group of symptoms, which I propose to call cadmium rhinitis. In the course of these irritative signs bleeding of the nose and small ulcerations of the nasopharynx occur, especially of the nasal cartilage, at Valsalvas locus, often also the medial and inferior concha. Eventually, a feeling of dryness of the pharynx develops. In one-half of the patients examined, general atrophy of the nasal mucosa was found. At the same time there is a deterioration of olfactory function with resulting hyposmia or anosmia. Female cadmium workers complained that, in preparing meals, they did not notice the scorching of milk and foods, that they could not smell whether foods were spoiled, so that especially in summer they often became ill after eating spoiled foods. This impairment of olfactory function, according to my observations, is at least partly reversible.

A characteristic sign of cadmium work of many years duration is the formation of a yellow cadmium fringe at the dental collum, most pronounced on the incisors and front teeth, sometimes also the molars. The cadmium fringe forms a ring around the collum of the tooth. Holstein recently found this fringe on the false teeth of a worker. Presumably it is due to a sulphur compound of cadmium resulting from the reaction of cadmium with the sulfocyanate of the saliva. Valetas observed a cadmium tooth fringe after work of two to four months' duration. The fringe, like the disturbance of olfactory function, can disappear in two to six months without leaving a trace. Since it has not been found in any other intoxication thus far, it may be considered pathognomonic for chronic cadmium poisoning. In France, Sweden and Germany the cadmium fringe was found only in cadmium accumulator factories; in America it was also found in cadmium smelters by Princi in 1947. The gums, in contrast to heavy metal fringes due to lead, mercury and bismuth, are free of visible changes. I found cadmium in the teeth of workers suffering from chronic cadmium poisoning, spectrochemically.

Another conspicuous sign, not occurring in other intoxications, is the considerable increase of ESR. Like Friberg, I found it in one-half of all chronic cadmium cases. Concomitant were complaints of lassitude and loss of weight. Although diets were sufficient in quality and quantity all of my patients with chronic cadmium poisoning lost from 12.6 to 26 kg, usually resulting in cadmium cachexia. Dyspepsia, loss of appetite and a feeling of gastric oppression also merit mention. Conspicuous and obviously constant signs are an irritative cough, increasing dyspnea and roentgen-ray findings of lung emphysema with functional impairment in spiro-

Lecture at the Tenth International Congress of Industrial Disease in Lisbon, September, 1951.

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Fig. 1.
Subpleural emphysema blebs.

ergometric tests. These signs were present in all of my cases. Many of the patients suffered from emphysematous bronchitis. The most curious sign of chronic cadmium poisoning, also first described by Friberg, is proteinurea. He found this sign with almost absolute regularity following cadmium work of more than eight years' duration. According to Friberg, the protein involved is of low molecular weight (20,000-30,000) identified as a globulin in electrophoretic determinations. The usual boiling test for proteinuria is not positive, a fact which explains why this protein escaped observation by French investigators. Many of my patients had a few leucocytes and erythrocytes in the urinary sediment, in contrast to the observations of Friberg, who did not find any pathologic sediments. It is interesting that French observers did not describe the emphysema and proteinuria, whereas, on the other hand, their observation of lancinating pain of the extremities, impairment of walking and transversal bone fissures (Milkman syndrome) have not been found in Sweden and Germany thus far. The discrepancy proves that a comparison of international experience is necessary to arrive at a complete clinical picture of chronic cadmium poisoning. Perhaps it is of interest that in German accumulator factories a greater susceptibility of women to the injurious effects of cadmium oxide was found. Especially, it appears that blond women are unsuited for cadmium work, since they easily react with vomiting and syncopal attacks.

AT THIS point I wish to report briefly on a case of chronic cadmium poisoning with curious post-mortem findings. It was the first case of chronic cadmium poisoning autopsied in Germany.

The case was that of a tool setter in an accumulator factory exposed to cadmium oxide dust for 16 years. He suffered from cadmium rhinitis and anosmia. In the course of time coughing and dyspnea developed; he often reported sick because of bronchitis, and finally gave up his cadmium work in 1946. His condition deteriorated, he became lean and emaciated, weighing only 47 kg (height 1,76 m). The anosmia, which had existed for 10 years, disappeared in 1948. When I examined the man, there was a

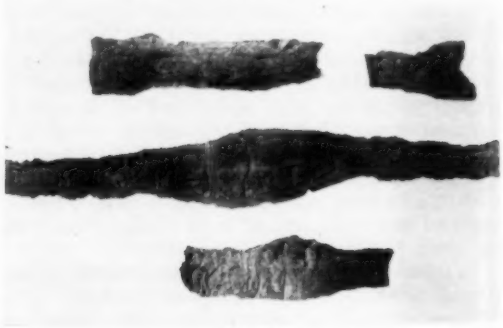

Fig. 2.
Jejunum with segmental cylindrical dilation and stretching.

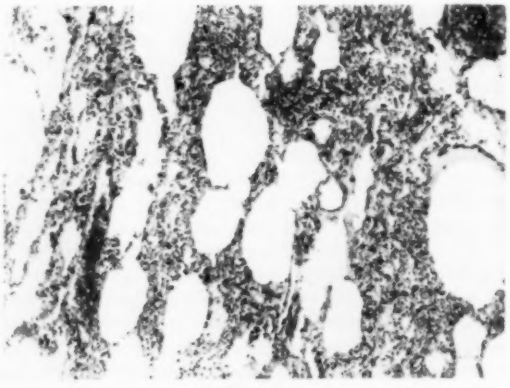

Fig. 3.
Chronic cadmium poisoning: interstitial pneumonitis.

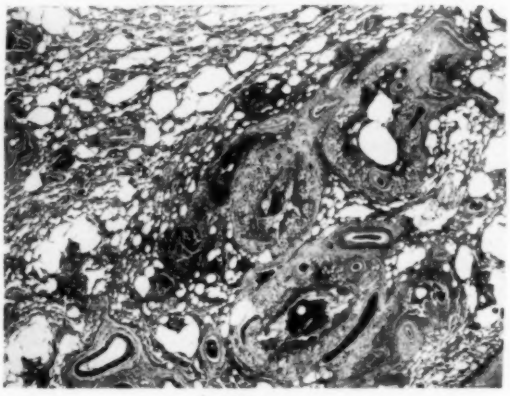

Fig. 4.
Chronic cadmium poisoning: fibroplastic changes in the lungs.

Figs. 1 through 6 are from the Pathological Institute, University of Münster: Prof. Siegmund and Dr. Hörstebrock.

general atrophy of the nasal mucosa. The ESR was enormously increased (82/112 mm.). Cyanosis and dyspnea were present even in the absence of exertion, clinically and on roentgen-ray examination there was considerable emphysema. A proteinuria was found. In February, 1950, dyspnea and cyanosis became severe, cachexia increased. At the same time upper abdominal colics and constipation set in. He died at the age of 39, under the clinical picture of dextrocardial failure.

The post-mortem examination was performed by Prof. Siegmund and Dr. Hörstebrock in the Institute for Pathology of the University of Münster. An atrophy of the nasal mucosa and intensive yellow staining of the olfactory bulbs was found. Whether the latter is analogous to the yellow dental fringe is still an open question. Examination of the lungs revealed bullous emphysema, fibroplastic peribronchitis and a primary peribronchial interstitial pneumonia of all lobes of the lungs, and purulent bronchitis. The figures demonstrate these findings clearly. Fig. 1 is a macroscopic picture of the lungs showing subpleural emphysematous blebs. Next are three histological specimens: (a) of interstitial inflammation (pneumonitis), (b) fibroplastic shrinkage, and (c) a loose network of emphysematous lung tissue (Figs. 2, 3, 4). Most surprising findings were those in the stomach and intestines. The lower esophagus was segmental, the stomach diffusely dilated. In the jejunum there were segmental cylindrical dilations and longitudinal stretching in several places of a portion 8-12 cm in length. As a result of loss of tonus evidenced by the longitudinal and transversal dilations, Kerkring's folds were reduced and far apart from one another. With the conception in mind, that intestinal wall tonus is regulated by more centrally situated nerve centers, the plexus of Auerbach and the plexus of Meissner were examined more closely. There was an increase of perineural cells and regressive changes of ganglionic cells—vacuolization and pigmentation resulting from metabolic changes of these cells. Fig. 5 shows considerable nuclear changes, with edematous and glassy appearance and obliterated structure of ganglion cells. The same changes were found in ganglion cells of the stomach, lower esophagus, pars membranacea of bronchial walls and tracheal walls. A systematic study of other vegetative centers (sympathetic thoracal ganglia, the 3rd-7th cervical ganglia, stellate ganglia, nuclei of vagus nerve and region of 3rd ventricle) yielded negative results. We therefore propose that the signs observed are due to intramural plexus lesions and (1) such lesions of ganglion cells of the abdominal plexus producing segmental jejunum dilation, (2) bronchial wall plexus lesions leading to peripheral lung emphysema. If this conception is correct, emphysema in chronic cadmium poisoning is due not only to mechanical injury resulting from coughing and fibroplastic shrinkage, but also to nerve lesions similar to those producing segmental intestinal atonia. A number of pictures showing pathologic changes in the ganglion cells of the bronchial walls serve as illustrations.

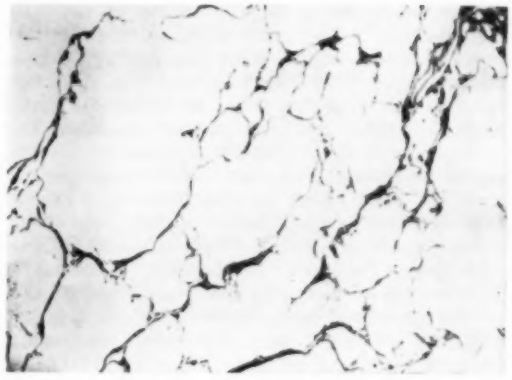

Fig. 5.
Chronic cadmium poisoning: bullous emphysema of peripheral lung areas.

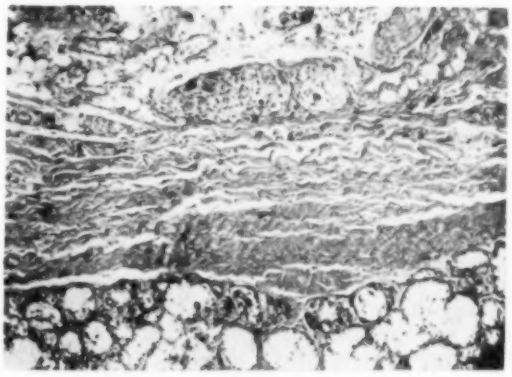

Fig. 6.
Regressive changes and destruction of ganglion cells in the intramural ganglia of the tracheal and broncial walls.

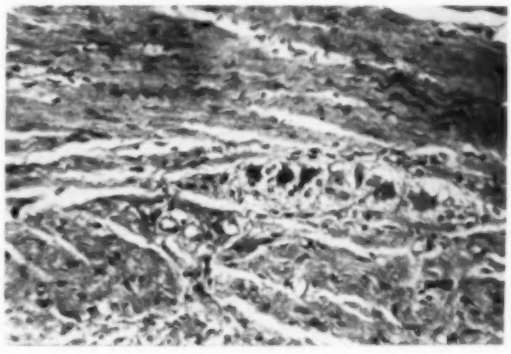

Fig. 7.
Strong regressive changes and destruction of ganglion cells in plexus myentericus in the jejunum of a segmental dilated place.

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Definite evidence that cadmium is basically responsible for the pathologic picture of this intoxication is indicated by the finding of cadmium in the liver and kidneys. The dithizone method was used, according to which the metal is made visible by brilliant red granula. The picture shows such granula particularly concentrated in the mitochondria surrounding the nucleus of liver cells. In the kidneys, signs of toxic nephrosis were found.

Dr. Hessling, of the Physicochemical Institute of the University of Münster, succeeded in determining cadmium by spectroanalysis. Whereas the cadmium content of 10-15 gm. organic substance of lungs, heart and spleen varied between 5 and 30 gamma, was practically absent in the brain, it amounted to 1430 gamma in the liver and 1750 gamma in the kidneys. These findings four years after discontinuation of cadmium work speak for themselves. I believe, that the impressive clinical and pathologic results of this 39 year old cadmium worker show conclusively that chronic cadmium poisoning, no less than the much-feared acute intoxication, is a serious occupational disease. A few years ago, it was still practically unknown. Publications which we owe to the French investigators Nicaud, Lafitte and Barthelemy and the Swedish investigator Friberg have changed this. It is my hope, that the German observations represent a further contribution. In this ominous and curiously polymorphous intoxication, the international cooperation of all industrial medical investigators appears to be of special importance.

In his textbook published in 1948, Rutherford Johnstone wrote that cadmium probably presents more lethal hazards than any other metal.

Tourist Disease

ENTERITIS in tourists is a well-recognized phenomenon in India, and it probably is due to the same cause there as in countries like Mexico and Egypt. The condition is found in countries in which the climate is tropical or subtropical and the prevailing standards of hygiene are poor. We have investigated many cases of this condition, which is due to bacillary dysentery. Examination of fecal specimens early in the illness will reveal the presence of bacillary exudate, which is often profuse. The causative organism is a bacillus of the Flexner type. In this part of India, the condition is found less often in tourists, since we have few tourists, than in newcomers and visitors. Newcomers from Europe are notoriously likely to get bacillary dysentery within a short time after their arrival. It would probably be no exaggeration to say that all get it. Immunity to the local strain is soon acquired. In the case of "permanent" residents, a holiday visit to a hill-station or to a distant part of the country is likely to entail an unwelcome but inevitable introduction to a different strain of the causative bacillus, manifested by another attack of dysentery. These are commonplace facts known to discerning medical men and laymen. The remedy is not to be sought in avoiding any particular type of food or cooking medium or even in confining one's milieu to international hotels. The disease is an infection highly amenable to prompt treatment by sulfaguanidine. If this is realized, the need for transoceanic telephone calls or rushing from the country in panic never to return need not and indeed will not, arise.

—W. B. ROANTREE, M.D. (Kolar Gold Field, Champion Reefs, Post Office, South India) in "Queries and Minor Notes," *J.A.M.A.*, 149:16 (August 16) 1952.

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Dental Aspects of Industrial Absenteeism

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A DENTIST studying the list of common causes for industrial absenteeism is impressed by several features differentiating absences for diseases of the teeth and gums from absences for other causes. The dental absences are a relatively small proportion of the total, but they assume an importance well beyond their frequency for three reasons: (1) the dental absences so listed are only those referred quite locally to the teeth and gums and do not include the more remote sequelae of dental infection; (2) they are usually associated with a need for corrective treatment beyond the mere abatement of acute symptoms; and (3) are preventable to a surprising extent.

Data on absences for direct dental reasons are only infrequently available. Puffer and Sebelius,[1] studying five war production plants in 1945, found an annual frequency rate of dental absences of 47.3 per 1,000 persons. Gafafer[2] reports annual numbers of dental absences of 17 per 1,000 among male, and 37.8 per 1,000 among female public utility employees. Each of these rates of Gafafer's is almost exactly 2% of the corresponding rate for all sickness absences. A study of claims for sick leave in New York Naval Shipyard in 1943[3] showed 23 out of 1200 to have been for dental reasons. This again gives a rough 2% relationship. Cameron[4] speaks of a "ghost army" of two million industrial absentees. We can imagine 40,000 of these "ghosts" to be nursing toothaches!

One reason for giving more attention to dental absences than their frequency would suggest lies in the systemic damage that may result from dental infection. True, the theory of focal infection is considerably discounted these days. Nevertheless, pain and inflammation in areas not far from infected teeth are common. Sinusitis of dental origin, iritis particularly where a long-rooted upper canine tooth is infected, impaired hearing in the presence of malocclusion of the maxillae, and pain and stiffness of the neck and shoulder are familiar examples. Going farther afield, a group from the University of Michigan recently reported as follows:[5]

"An exhaustive and critical examination of the literature presented during the past 20 years on the role of dental focal infection in valvular heart disease warrants the following conclusions: (1) subacute bacterial endocarditis usually is implanted on a rheumatic heart valve by the viridans group of streptococci; (2) these organisms are common residents of the mouth and infected root canals; and (3) case histories appear adequate to prove that these streptococci do gain transient entrance to the blood stream, particularly during extractions."

The possible relationship of dental infection to this one disease gives us cause for serious thought. There is growing evidence that rheumatic fever, which so often paves the way for bacterial endocarditis, is also frequently of dental origin. Mention has been made of the large numbers of absences related to respiratory and psychological conditions. Subacute dental disease is almost undoubtedly a contributing factor in both of these categories. Attempts at statistical measurement of the absenteeism resulting indirectly from dental disease have been unsuccessful for obvious reasons. We can only point to individual cases where dental treatment has brought relief.

A second reason for giving attention to dental absenteeism is that such absenteeism is almost invariably the sign of a need for corrective or restorative dental treatment. Pulpitis or acute alveolar abscess indicates either the need for the filling or the extraction of teeth. Extractions require prosthetic replacement in most instances. Acute periodontal abscesses show the need for conservative periodontal treatment in the many instances where extraction can be avoided. Treatment is necessary for the subsequent dental health of the worker. The situation is quite different from that of a minor respiratory infection which may cause just as long an illness absence but leaves no treatment need in its wake.

A third reason for interest in dental absences lies in their controllability. Data on this subject can be collected where palliative emergency dental service is available to industrial employees. In New York Naval Shipyard a study was made of 633 civilian emergency visits to the dental dispensary. Sixty percent of these visits involved disabling conditions which were relieved sufficiently for the worker to return to the job. Twenty-eight percent involved non-disabling conditions but ones which required consultation or simple care. Many of these cases might have required permission to seek outside dental care if service had not been available on the premises. Malingering was not a problem (and why should a malingerer come to a dental office?). Only 12% involved disabling conditions not within the scope of the dental dispensary. A number even of these cases could have been relieved had extraction work been permitted in the dispensary. It was not. The difficulty of distinguishing between emergency and routine extraction work led the Naval authorities to fear an uncontrolla-

Presented at a Joint Meeting of the INDUSTRIAL MEDICAL ASSOCIATION, the AMERICAN ASSOCIATION OF INDUSTRIAL DENTISTS, and the AMERICAN ASSOCIATION OF INDUSTRIAL NURSES, Cincinnati, April 23, 1952.

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ble flood of exodontia were any to be allowed. Acute alveolar abscesses were relieved either by lancing or by drainage through the root canal.

Emergency dental treatment is usually brief. The time required per case in the New York Naval Shipyard averaged 10 minutes. Each worker returned to work was saved an estimated 5.3 hours on the job, on the assumption he would otherwise have left the Yard for the rest of the day. Actual savings were probably greater, since a number of the absences would have been for more than one day. More than nine out of 10 of the conditions treated were non-occupational. The few occupational conditions seen were the results of more or less unpredictable injuries, as from falls or from blows by heavy tools.

The four emergency dental cases seen per day at the New York Naval Shipyard in this period give an erroneously low estimate of the amount of such emergency treatment needed in a large working force. Naval authorities did not permit even the posting of an announcement of the dental service, and its existence was realized in only a few shops within the Yard. A much better estimate of the usual dental emergency load in industry is available from the Hood Rubber Company in Watertown, Massachusetts.[6] Here 5600 employees in 1946 had access to one company dentist for emergency care, but there was no program of preventive dentistry. Fourteen to 20 emergency cases came to this dentist every day. They did not come until the pain was "pretty bad," and most of them were returned to work. Both here and at New York Naval Shipyard it was felt that the majority of the workers, had they been forced to seek outside care for acute dental conditions, would not have received more than palliative care the first day from their own dentists. Definitive treatment would have had to be postponed.

THERE is much more to industrial dental service than mere palliative emergency work. A good preventive dental service based on case-finding, health education, and reference to the private practitioner for routine restorative work can produce savings of teeth as great as five per person in the middle years of life.[7] The Metropolitan Life Insurance Company, which reports this result in its Home Office working force, had an emergency rate in its dental clinic in 1945 of only 3.4 cases per day among 11,000 workers, or only about one-tenth of the emergency rate at Hood Rubber Company. Prevention pays! A preventive dental service can be instituted efficiently in companies with only 1,000 workers.

The importance and the controllable nature of dental absenteeism in industry suggest the advisability of a dental program providing both preventive and palliative emergency services in all plants employing more than 1,000 workers.

References

1. PUFFER, R. R., and SEBELIUS, C. L.: Absenteeism in Tennessee Industrial Plants Caused by Diseases of the Teeth and Gums. *J. A. Dent. A.*, 33:1122 (September) 1946.
2. GAFAFER, W. M.: Manual of Industrial Hygiene. Saunders, 1943, p. 427.
3. DUNNING, J. M.: Industrial Dentistry at New York Naval Shipyard. *Naval Med. Bull.*, 46:1857 (December) 1946.
4. CAMERON, D.: The Nature and Scope of Industrial Absenteeism in the United States. Presented at the Thirty-Seventh Annual Meeting of the INDUSTRIAL MEDICAL ASSOCIATION, Cincinnati, April 23, 1952.
5. EASLICK, K. A., et al.: An Evaluation of the Effect of Dental Foci of Infection on Health, *J. A. Dent. A.*, 42:615 (June) 1950.
6. DONIGAN, H. J.: Verbal report to author, March 15, 1946.
7. DUNNING, J. M., and KLEIN, H.: Saving Teeth among Home Office Employees of the Metropolitan Life Insurance Co. *J. A. Dent. A.*, 31:1632 (December) 1944.

The Heat "Shut Down"

AN INTERESTING SURVEY specifically applying to office dismissals because of the hot weather was made by the Research and Study Division of the New York Chapter, National Office Management Association, for the three-day period of June 25, 26 and 27. Of the 165 companies surveyed (employing a total of 74,012 persons in the offices), 30% had fully air-conditioned offices; 50% had no air-conditioning, while the remaining 20% had partial air-conditioning. In the "no air-conditioning" group (83 employers), 50% of the companies closed early on the first day of the study; 85%, on the second day, and 43%, on the third day. In the "partly air-conditioned" group (33 employers), 39% of the companies closed early on the first day of the study; 79%, on the second day, and 30%, on the third day. In the "fully air-conditioned" group (49 employers), 4% of the companies closed early on the first day of the study; 10%, on the second day, and 4%, on the third day. Only five of the 165 reporting companies have a policy or formula governing closing and no two are in agreement. One uses a temperature of 90 degrees or over as a criterion, another uses 93 degrees or over. Three companies use a standard obtained by adding the temperature to 20% of the relative humidity.

—From "Hot Weather Dismissals" by A. H. GAGER in *Office Executive*, 27:8 (August) 1952.

Eye Protection Program

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THE building of armored military vehicles presents a great potential eye injury hazard throughout a number of the manufacturing processes. Molten metal splattered from heavy welding operations, flying chips from milling machinery, and moving objects which may strike workers, are representative of ever-present eye hazards.

Although there have been many ideal eye protection programs suggested by numerous authorities in this field, the purpose of this article is to present an account of the program developed at the Cleveland Tank Plant.[1,2] No single feature of this program can be considered original, but it is believed that the scope of the program is unique.

Since the start of operations of the Tank Plant, on August 26, 1950, the employee population has increased from a nucleus of 55 executives to a present total of nearly 7,000. The operation has been transformed from a farm surplus warehouse to a heavy maufacturing industry. The phrase "From Beans to Battle Wagons" aptly describes the situation.

In view of the obvious eye injury hazards, management decided to require all personnel, whether directly engaged in the manufacturing processes, to wear specified eye protection upon entering any manufacturing area. The Safety Department specified that a safety goggle with metal side shields, or the equivalent, be worn. The goggles are equipped with the best quality precision safety lenses available, and comply with Federal specifications.

The nature of the employee population made the development of the program particularly difficult. The majority of employees have been a part of the organization for less than a year. Many employees were recruited from areas in which standards for eye care are low.

The presence of large numbers of employees of outside contractors in the plant during remodeling and machinery installation, further complicated the matter. Although these did not originally come within the jurisdiction of the plant's Safety Program, it finally became necessary to compel them to wear safety goggles for their own protection, as well as to maintain the morale of employees of the Tank Plant.

Presented at the General Motors Medical Conference, Cincinnati, April 21, 1952.

Obtaining and Maintaining Safety Goggles

THE employee is temporarily issued a plastic shield which serves as eye protection until he can be fitted with the permanent type safety goggles required for his job. As soon as possible, he returns to the Safety Department and is fitted with stock safety goggles. This fitting is accomplished by a trained optician. The employee is advised that if the goggles should become uncomfortable or require adjustment at any time, he is to return to have them re-fitted.

The safety goggles are issued without charge to the employee for his use while at the Tank Plant; upon termination of employment, they are returned as company property. He is informed that the goggles are optically neutral and, when properly fitted, do not in any way affect or injure the eyes.

If the employee wears prescription eye glasses, he is issued a special plastic shield to wear over them. These shields are intended as temporary devices, although they may be used permanently. However, the employee is informed that experience has shown that the most satisfactory method of protecting his eyes is to purchase a pair of safety goggles ground to his prescription.[1]

If he has a prescription which is satisfactory, he may submit it to the optician, who orders prescription safety goggles for him and selects his proper frame size. If his prescribed street glasses are satisfactory, the optician may duplicate the prescription from the glasses with a lensometer and then order the safety goggles. If the optician doubts that this prescription or the street glasses are satisfactory, he may advise re-examination by an eye specialist of the employee's choice.

The employee is informed that he may have his eye examination performed by the ophthalmologist who is available at the plant Medical Department. If the Medical Department has noted that the employee is in need of visual correction at the time of pre-employment examination, he is also advised to have his eyes examined by an eye specialist.

To enable employees to keep safety goggles free of dust and dirt, goggle cleaning stations are located at strategic places throughout the plant. They are instructed to keep goggles clean, and are advised to handle them carefully so that they will not be twisted out of adjustment.

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Problems Peculiar to the Fitting of Safety Glasses

ALL EMPLOYEES at this plant are required to wear a metal-framed, side-shielded, safety goggle with casehardened lenses. By the very nature of this requirement, fitting is difficult, and expert attention is required. It is essential to have proper clearance of the shields from the brow and face so that shields do not press and become uncomfortable, yet they must be close enough so that maximum protection is afforded. As a result of the side shields, some employees are troubled with mild claustrophobia. Because the frames are malleable, they must be re-adjusted from time to time as necessary. Owing to the fact that the goggle is somewhat heavier than the ordinary dress spectacle, the nosepiece must be carefully fitted.

The lenses are made of stock frequently twice the thickness of ordinary spectacle glass, which of course, increases the weight of the goggle. The glass is tempered according to Federal specification G.G.G.-G.-50lb.

In order to obtain the greatest field of vision, a −6 base curve is utilized. The curved surface also provides for greater protection in that it tends to deflect direct blows. However, certain optical problems are immediately encountered. This lens does have an isoikonic factor to the glass. There is no refractive power yet the image size is definitely changed. For employees who have been wearing spectacles ground on a different base curve, this element may introduce some discomfort. The employee who has never worn glasses may find the change in image objectionable when required to wear plano goggles.

In the process of casehardening of the lens, there is a small amount of warping in the glass which may introduce a slight cylindrical error. This is generally of an insignificant degree. However, in a discriminating individual, such may be intolerable. The leading manufacturers of safety goggles have developed a method of individually tempering their lenses to minimize this problem. They check each lens and reject if beyond the tolerance required. This is an excellent argument for obtaining a high grade of safety goggle which, though initially expensive, pays off in the long run. In the case of the less expensive goggle, the manufacturer cannot afford to reject such lenses. It is also noteworthy that because of the warping problem, it is not practical to apply the casehardening process to concave lenses of strength greater than −6.

It is a requirement of the Federal specification, that any lens must have a minimum of 3 mm. thickness at its thinnest point. The lens must be casehardened to resist the ⅞-inch steel ball test dropped from 50 inches. It must be mounted in a non-flamable frame, such as metal or cellulose acetate plastic. It must bear the trade mark of the manufacturer.

Owing to the added thickness, there is an appreciable amount of light absorption from safety glasses, making it possible for a certain number of people who are comfortable with their present visual acuity to notice an increased ocular discomfort on wearing safety goggles. This is frequently true in the case of the employee who has never worn glasses, yet has tolerated a certain amount of refractive error, and, upon being required to wear safety glasses, develops discomfort. Thus a hidden refractive error is manifested. He is frequently a difficult person to convince that he should wear safety glasses. Intelligent handling on the part of the ophthalmologist, the industrial physician, the optician, the safety director or anyone else he contacts in regard to this problem, is essential. It is easy for a practitioner, who is not sympathetic towards eye protection or aware of the problems of a manufacturing plant, to advise an employee against the wearing of safety glasses, thus doing him a great disservice.

Because of the inherent annoying factors in the safety goggle, we have found that even small inaccuracies in the prescription will not be tolerated and will lead to immediate complaint, whereas such may not have given discomfort in a more readily accepted dress spectacle. This applies especially to the employee who wears a dress spectacle with an inaccurate correction even though of a minor degree. It also applies to the individual with an undetected refractive error of small or appreciable degree who has not been accustomed to wearing glasses at all.

Advantages of a Full-Time Optician

NO SAFETY goggle program can be considered adequately administered without the provision for comfortably fitted safety goggles.[2] No amount of discipline will be effective unless the employee is equipped with glasses with which he is completely satisfied. The mechanical fitting of the goggle is just as important as securing the correct prescription in the glass. This cannot be accomplished by an untrained individual who has been given a pair of pliers and a few words of instruction. He must have a thorough knowledge of practical optics, the various lens types, and bifocal segments. He must be proficient in the use of such equipment and tools as are required for the checking, fitting and repairing of safety goggles. Haphazard dispensing of safety goggles is bound to bring unsatisfactory results.

A trained optician should dispense all safety goggles that are issued and make necessary adjustments in them whenever needed. He is required to handle the repairs and sterilization of goggles. He issues goggles according to the job requirements which have been set up by the Safety Department, such as issuing tinted goggles for use in welding areas, or special types of side shields and bridges.

He is in charge of ordering prescription-ground goggles. This may be from a prescription brought in by an employee from an eye

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specialist, or, if the employee has satisfactory dress glasses, he may duplicate the prescription and order the safety goggle lens without delay. The latter requires skill in the use of the lensometer. He also uses the lensometer to check all prescription goggles before final issuance to the employee.

The optician must have experience and judgment. He is able to adjust complaints arising from the wearing of goggles or in their procurement, many of which he is able to solve by simple repairs or instructions. He must be alert enough to recognize that some of these cases are in need of refractions (even if their visual acuity appears to be within normal limits). He must be able to determine whether the prescription submitted by the employee is recent enough to be satisfactory. He must be able to understand the special requirements of a special job, knowing when and why an employee has difficulty with his goggles. New machinery may require a different type of safety goggle, or even a new prescription, especially when the employee has to wear a bifocal lens.

He instructs the employee in the wearing of special goggles. He must be adept in the problems that are encountered in the fitting of safety goggles; knowing how to handle the problem of the wide bridge, and any others that may arise. Safety goggles are probably the most difficult type of spectacle to be fitted. He must be diplomatic at all times. He must have professional bearing in his dealing with employees if the 100% eye protection program is to be a success.

During the year 1951, 1,242 prescription goggles were handled by our optician. Of these 685 were prescriptions issued by ophthalmologists performing refractions in the plant Medical Department. The remaining 557 were either prescriptions brought in by the employee or obtained by duplicating prescriptions on the lensometer from satisfactory street glasses, recently prescribed for the employee.

Advantages of a Qualified Ophthalmologist

SIMPLY to tell an employee to go out and get his eyes examined and bring back a pair of glasses which will correct his vision is of little value. It is known that many 20/20 eyes are improperly corrected, resulting in failure to relieve visual fatigue. The best possible arrangement is to have an ophthalmologist, who is familiar with the working conditions and the visual problems of the plant, be designated to perform refractions required for safety goggles.[2] He must be provided with the essential equipment to perform this task. Such an arrangement makes his service attractive to the employee.

The fact that such services are available is a large factor in promoting the Safety Goggle Program. The ophthalmologist prescribes according to the requirements of the employee and his job, recommending the proper strength or the type of glass required. He is available for adjustments in complications arising from the wearing of plano or prescription goggles, which the optician is unable to handle.

It is to be remembered that this plant has been engaged in national defense work, requiring a six-day week, eight or more hours per day, for the employee. Therefore, conservation of man hours has been of utmost importance. By having refractions performed in the plant, a great deal of hardship to the employee is saved. One can count on two to three trips out of the plant during working hours in order to obtain a prescription for safety goggles which are suitable. Consequently, a possible 1½ days of lost time have been reduced to less than one hour per man. During the past year, possibly 10,000 man hours have been conserved, considering the number of prescription safety goggles provided.

Problems of the Ophthalmologist

AS PREVIOUSLY mentioned, extreme accuracy in refraction is required. The over-all strength of the glass should be adjusted according to the job requirements, especially in reference to the working distance, as for example, the task of the machinist who has to perform close work; in contrast to the crane operator, who must have sharp distant vision. In the first instance the lens must give as much aid to accommodation as possible, whereas, in the second case, the lens must provide accuracy for distant vision with less regard for accommodative assistance.

An employee wearing a bifocal lens may require a strength that is different from his personal glasses because of the working distance involved in his job. In general, we try not to use a different type of lens from that to which the employee has been accustomed. However, in some cases, a different bifocal or trifocal may be required, as in the case of the man whose work requires looking upward a greater part of the time, and so must have a segment in the upper part of the lens.

Many complaints about the wearing of safety goggles have to be solved by the ophthalmologist. This is particularly true of the employee who is wearing a goggle with an incorrect prescription. Another source of complaint, results from the employee wearing a plano goggle, when he actually has an uncorrected refractive error giving rise to asthenopic symptoms.

In addition to mechanical and refractive obstacles encountered when enforcing a safety goggle requirement, there are psychological barriers. There is the resentment on the part of the employee who has never worn goggles. Such an employee is much inclined to attribute any pathological condition to the safety goggle. A common nuisance is for a middle aged employee to develop presbyopic symptoms during the period that he has been wearing plano goggles; a condition entirely related to the aging process of the eye, yet attributed by him to the goggles.

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Similarly, other conditions, such as chronic conjunctivitis, blepharitis, hordeolum, chalazion, lens opacities, none of which could be related to the wearing of plano goggles, are attributed by the employee to the enforced use of them. The true cause of such conditions must be carefully explained to the employee.

Anisometropia presents a problem when an attempt is made to raise the vision of the non-dominant eye to plant requirements. This will be tolerated with more or less facility depending on the amount of the anisometropia, the age of the employee and his psychological make-up. In general, such situations have to be handled with caution, and it is usually not well to bring the vision of the non-dominant eye up to equal the dominant eye even when such is possible. In any event, the situation has to be carefully explained. The employee must be told that, although he may experience discomfort, the vision will not be harmed. If these changes cannot be tolerated, corrective measures can be taken. This reassurance may make these attempts to improve visual acuity successful.

There are presbyopic individuals who have been getting along using a single type of lens, but now, in order to perform the job satisfactorily, must use a bifocal. Such cases require tactful consideration.

In the prescribing of cylindrical lenses for the employee who has not previously worn glasses, it may be essential to sacrifice some degree of visual acuity by either incompletely correcting the astigmatism, so as to avoid annoying changes in image size and position, or arbitrarily to set the cylinder axis at 90° and 180° to avoid tilting of images, thus preventing a dangerous situation. Although these objectionable optical effects may be overcome by continued wearing, many of these employees will only wear corrective glasses on the job, thus allowing the effects to persist and be hazardous. The ophthalmologist must guard against over-zealous attempts to increase visual acuity by changing astigmatic correction from that previously worn, and similarly obtain undesirable results.

The ophthalmologist must check strength and fit of the goggles whenever essential in the event that the optician cannot satisfy the employee. He must be on guard for any inaccuracies in either the lens or the frame.

Filtering lenses such as the calabar type must be prescribed for employees assigned to welding.[3] In the cases of individuals working near the welding areas but not directly engaged in welding, lighter shades of filtering lenses may be utilized to protect against occasional exposure to welding flash. For this situation Cruxite lenses are frequently advantageous since the lens does have ultra-violet filtering qualities, yet does not unduly interfere with visual acuity.[3]

It is a frequent occurrence for the ophthalmologist to detect pathological conditions of the eye during the routine examination for prescription goggles. The detection of such conditions is a service to both the employee and the employer. When pathological changes are found, the employee is notified of their presence. He is advised to consult the eye physician of his choice for further diagnosis and treatment. But, if the employee has been attributing discomfort to safety goggles, the true nature of the complaint is readily pointed out. The reputation of the safety goggle is not further blemished.

PATHOLOGICAL FINDINGS IN THE COURSE OF 685 REFRACTIONS

ADNEXA:
- (a) Cicatrix of tear duct, 1
- (b) Chronic blepharitis, 5
- (c) Chalazion, 2
- (d) Papilloma of lid, 2

CONJUNCTIVA:
- (a) Chronic conjunctivitis
- (b) Conjunctival varices, 1
- (c) Pinguecula, 1

CORNEA:
- (a) Central leucoma of cornea, 3
- (b) Corneal dystrophy, 2
- (c) Imbedded corneal foreign body (of several days duration), 1

MUSCLES:
- (a) Severe convergence anomalies, 3
- (b) Incipient muscle paralysis, 1
- (c) Strabismus, 4
- (d) Vertical muscle inbalance, 2

PUPIL:
- (a) Ectopia pupillae, 2
- (b) Paralysis of pupil, 1

VITREOUS:
- Floaters and Hyaloid remnants, 3

LENS:
- Opacities and cataract, 5

RETINA and CHOROID:
- Chorioretinitis chronic, 3
- Retinal venous aneurysm, 1
- Retinal angiospasm, 1
- Premature arterio-venous nicking (at age 32), 1
- Cystic retinopathy, 1
- Premature senile macular pigmentation and degeneration, 9
- Macular cyst, 1
- Melanoblastoma of choroid, 1

GENERAL DISEASE:
- Cerebral accident, 1
- Diabetes, 1
- Anemia, 1
- Allergy to homatropine, 1
- Migraine, 3
- *Central Nervous System:*
- Amblyopia exanopsia, 6
- Bitemporal heminanopsia from intracranial neoplasm, 1

Intraocular tension is routinely tested by palpation and doubtful cases are checked by tonometry. Although it had been anticipated that cases of glaucoma would be detected, no positive diagnosis has been made to date. This may be related to the age distribution of the employees of this plant.

Safety Record 1951, Cleveland Tank Plant

STATISTICS from *Accident Facts*, a magazine published annually by the National Safety Council, show that during the year 1950, approximately 1,950,000 disabling industrial injuries involving lost work time were reported throughout industry in the United States.[4] Three percent of the compensation paid for these industrial injuries was paid for eye injuries.

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The Ohio Commission for Safety and Compensation reported that in 1949 (the latest study available) a total of 271,156 claims were filed for industrial injuries. Of these claims, 51,924, or 19.1%, were for eye injuries; 3,272 were for injury to both eyes; 48,652 were for injury to one eye. A total of 170 claims for complete loss of vision were made.

No work days have been lost as a result of eye injuries since the plant began operating on August 26, 1950.

During 1951, 1,568 employees reported to the Medical Department for treatment of eye conditions alleged to be from occupational causes. The types of injuries included foreign bodies in the eye, welding flash, dust irritation, conjunctivitis, and eye conditions said to be related to the wearing of safety goggles. Of all these cases, only one was severe enough to require the patient to wear an eye patch for more than 24 hours.

Almost hourly, employees report either to the Medical or the Safety Department with safety goggles that have become pitted or have sustained fractured lenses. Serious injury has obviously been averted by the goggles in most of these cases.

During 1951, 18 employees of the Tank Plant averted extremely severe eye injuries as a result of wearing proper eye protection. Investigation of the particular accidents revealed, beyond any doubt, that severe disabling eye injuries would have occurred. The causes of the 18 accidents occurring to these employees were as follows:

Eyes Saved	Cases
(a) Flying pieces of metal—broken drills, chips	9
(b) Explosion of grinding wheel	2
(c) Flying slag or hot metal from welding splatter	4
(d) Splatter of hot caustic solution	1
(e) Striking region of eye against stationary sharp-pointed projection on ventilating duct	1
(f) Direct blow from sharp pointed tool (file)	1

That the 100% eye protection program is effective becomes evident when one realizes that, had each one of these accidents resulted in lost vision to one eye, a total of $72,450.00 would have been paid under the Ohio Compensation statutes.[5]

Had just one out of these accidents resulted in lost vision to both eyes of a 25 year old man, a total of $64,983.46 would have to be paid in weekly disability compensation payments and medical expenses to the individual.

A total cost of the eye protection program at the Tank Plant for the entire year of 1951 was less than either of the sums used above as illustrated.

Summary

THE record at Cleveland Tank Plant of General Motors Corporation indicates that a 100% eye protection program can be established. This program has not only accomplished its primary objective of procuring the greatest degree of eye protection for the employee, but in addition has greatly enhanced employee-employer relationship and provided a great economic saving to the plant operation.

[The authors are greatly indebted to DR. RICHARD BELL, JR., Ophthalmology Consultant, to CHARLES MURRAY, Safety Director; and to EUGENE HEARD, Optician, Cleveland Tank Plant, for their contributions to this program.]

Citations

1. KUHN, H. S.: Eyes and Industry. 2nd Ed., C. V. Mosby Company, 1950.
2. STOLZAR, I. H.: Economics of Industrial Ophthalmology. *Ohio State Med. J.*, 47:654 (July) 1951.
3. National Bureau of Standards: U.S. Dept. of Commerce Circular 471, 1948.
4. National Safety Council: Accident Facts, 1951.
5. WATSON, E. E.: Major Changes in Benefits 1912-1951 in Ohio Workmans Compensation Law. Consulting Actuary Report prepared July 1, 1951.

Work Awry? Shoot It!

SWIFT & COMPANY, Chicago meat packers, now have a department called "Work Simplification and Camera Analysis," so closely have the two become intertwined. T. J. Chapman, division superintendent, tactfully invites foremen to ask for film studies of troublesome operations, has formed a foreman's group to study the films, recommending improvements. The system produced 107 proposals for methods changes in 1950, 171 proposals in 1951, and 116 in the first three months of this year. Savings have multiplied in the same ratio. The system has been adopted in 21 of Swift's 50 packing plants. —*Notes and Quotes*, August, 1952.

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Successful Prepaid Medicine in Industry
— A Complete Industrial Medical Program —

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DURING the past 35 years, the increasing interest in industrial medicine has been paralleled by the growing interest in voluntary prepaid medicine. The industrial physician has as his goal the improved well-being of the worker. Both management and unions in their health and welfare programs are also attempting to obtain more adequate medical services.

Prepaid health insurance companies base their membership on industrial groups, but local conditions in diversified industries throughout the country make it imperative that no stereotyped plan of prepaid medicine in industry be adopted. Rather, plans should be formulated to fit the needs of the communities and their local problems. The industrial medical specialist is the key person in these plans and in their relationship to industries. He must be prepared to assist in this development.

In Tacoma, Washington, a plan of prepaid medical care for industry was started by the County Medical Society in June, 1917. This plan is actuarially sound, as its long record of successful operation testifies. It is a "service"-type plan in which, by agreement, certain medical services are rendered to policyholders. This is in contrast to the "indemnity" or "fixed-payment" policies widely advocated by many present prepay medical care plans.

One of the commonly accepted viewpoints of industrial practice is that it must carefully refrain from personal medical services other than those of a temporary type.[1] However, here I wish to explain the well-established operations of the nation's pioneer medical society-sponsored, competitive, service-type health insurance plan which provides complete, continuing medical care for an industrial group.

As stated, this plan, the Pierce County Industrial Medical Bureau, has been in effect since 1917. Since 1931 similar health insurance plans sponsored by medical societies have been inaugurated in 21 other counties in Washington State, and all are inter-related with a cooperative group sponsored by the State Medical Association. This is the best answer yet made available by the Medical Associations for the socialistic-minded who clamor for control of our medical practice. It is of importance to us primarily as it affects industry and industrial medical practice. This Tacoma plan provides complete medical care for over 700 industrial groups, covering more than 22,000 men and 8,000 women employees (plus a catastrophic coverage for other members of the family numbering in excess of 11,000). This is the bulk of our employed population in a community of about 200,000.

THE ONLY industry having a full-time physician is the one I serve. This group of 1200 in a basic non-ferrous smelter and refinery has been insured under this Medical Bureau since 1939. Before that time medical coverage was obtained through a private contract. Some 95% of the 200 eligible county physicians are members of this non-profit Medical Bureau, and are available to provide service to all our employees. These doctor-members elect a board of directors each year, and this board employs an executive secretary to supervise the 16 employees administering the plan. Since the physicians control and run the plan themselves, they are the ones who suffer if it is mishandled. In effect, they underwrite any operating deficit by means of a percentage reduction in their basic fee schedule.

The plant with which I am associated is about five miles from the center of town, where the majority of the physicians have their offices. The Medical Bureau is eager to give our employees the most convenient medical care possible. This is done through an arrangement with the smelter which allows the physician to provide such medical care in the plant dispensary, employee's home, or hospital as the physician or patient feels is indicated. The smelter physician, then, can see an employee for either occupational or non-occupational conditions and can follow the diagnosis with such treatment as is necessary. It should be emphasized again that these employees have a free choice of physicians and are not restricted to the physician at the smelter. From experience we know the majority of these employees visit our dispensary, even though many of them concurrently or later go to their own family doctor. Such visits permit medical counseling in the truest sense of the word.

Plans such as this give a tremendous advantage to the industrial physician in his control of occupational diseases, and greatly expand his activities and opportunities in the field of public

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health and preventive medicine. The routine daily services of an adequately equipped and easily accessible plant dispensary, available to employees on company time, encourage early and continuous medical care without regard to the etiology of the condition. The services are not limited to emergency non-occupational treatments or to plant-developed injuries or illness. The workmen visit the dispensary for any reason they wish, including regular medical treatments requested by their private doctors, or to discuss any matter of personal, family, or plant health. This greatly expands the areas of discussion for the doctor and employees at the health and safety committee meetings, and permits a greater utilization of the local public health facilities for the workman and his family. They can be referred to any general or special practitioner at their own or the industrial physician's request. Everything is prepaid. Diagnostic and preventive services are thus readily available without difficulty or without the intervention of any third person. The Medical Bureau pays in full to its physician members, on a fee schedule basis, the medical bills for direct services on anything coming under the provisions of the health policy.

NEEDLESS to say, there are minor limitations of the prepaid responsibilities. These include venereal disease except diagnosis, dental services, psychiatric services except diagnosis, criminally acquired injuries, congenital defects (e.g., harelip), and covers three (no more) months' hospital care for any one condition, or one year's therapy for any one condition. This latter limitation, however, is not too serious in Washington where the State Welfare Department provides full health services for all persons determined by it to be medically indigent. All other medical and surgical services are covered. This is full office, home, or hospital care. No salary limitation is applied to any industrial group.

The doctors are reimbursed for specific services on a definite point schedule basis, e.g., an appendectomy is 150 units; a gastrectomy 325 units; a colostomy 150 units; and bilateral hernia repair 160 units. To deter excessive or unnecessary office call scheduling by the physician or patient, a monthly case average system is used. Under this arrangement, the physician is paid the same basic fee per patient seen each month regardless of the number of office calls made. Hospital costs to the extent of $400,000 were paid out last year. Although the Bureau owns and operates its own 61-bed hospital and is now expanding to twice this capacity, free choice of any of several recognized local hospitals exists. Any deficit of monthly income to total monthly bills is adjusted, after hospital bills and fixed charges are paid, by proportionally decreasing the physician's own point fees. At that, over 54% of gross income, or about one-half million dollars, was paid out to member physicians last year. This is a substantial part of their income. Administration expenses were only 4%, a low figure and much below usual level.

This Medical Bureau also administers the local Veterans Medical Program and our State Social Welfare medical program for all categories. The plan continues to recruit industrial groups and, as evidence of its service to the community, rarely if ever do any of these groups relinquish their coverage. In fact, many groups have had continuous Bureau coverage for over 20 years.

The basic disadvantage of the plan is that it does not directly encourage preventive medicine. However, under its provisions the industrial physician or any member physician is able to do anything indicated for preventive or definitive medical care. What more ideal program could any industrial physician want? It makes more office practice of a minor nature but eliminates the money barrier to any health service that is indicated, and offers unlimited opportunity for conservation of workers' health.

These services are all provided for a basic premium of $3.40 per month for men and $3.90 per month for women, as, of course, women's special health problems are covered, excluding pregnancy, with the exception of the family coverage.

This prepaid plan greatly facilitates our medical program and in our experience has decreased the loss of time from work until it is now half the national average. This plan is further expanded by a Family Coverage Plan available for hospital and catastrophic expense illness, but not for the low-cost office and home calls. Over 65% of our eligible plant families are included.

Although of less importance to our plant services, those retired at the age of 65 may continue their coverage by payment of an additional $2.50 per month, a total of $5.90. This fulfills the recommendations of the Commission on Chronic Illness[2] for the older person and eliminates their dependence on any socialistic sponsored plan for the senior citizen.

Our program is effective and successful because it is locally administered and controlled, because it is competitive, because it is sponsored by the medical society, and because it is a prepaid "service"-type health insurance. It supplements an all-inclusive industrial medical program in which the fullest aspect of preventive and industrial in-plant medical service complements definitive care. It keeps men at work, decreases lost time and labor turnover, and, by permitting early and complete medical care, keeps more men at work more days—the objective of all of us practicing industrial medicine.

References

1. American Academy of Occupational Medicine. Statement of Objectives. 1951.

2. KLEM, M. C., and MCKIEVER, M. F.: Voluntary Health Insurance for Industrial Groups. *Indust. Med. & Surg.*, 20:11, 489 (November) 1951.

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Fluoroacetate (1080) Poisoning

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FLUOROACETATE (1080) was proposed as a rodenticide by Kalmbach[1] as a result of an intensive screening program conducted during the war by the Fish & Wildlife Research Laboratory. The compound itself had been described in a German patent[2] and recommended as a moth-proofing agent. Marais[3] reported the compound to be the active principle of the toxic plant "Gifblaar" which causes considerable damage to South African livestock. Sodium fluoroacetate has been widely used as a rodenticide by the U. S. Army and several government agencies. From the reports published on its use in rat extermination[4-12] it appears that excellent results may be obtained. It is odorless and relatively tasteless but so highly toxic that although sublethal doses may confer acquired resistance this does not occur practically. Fluoroacetate appears not to be bacteriostatic and does not interfere with the detection of plague in poisoned rats.[9] However, in contrast to squill and ANTU it shows no selective toxicity toward rodents. Since lethal doses are extremely low, the relatively larger body size of humans and house pets does not afford any practical protection. Because of its high water solubility, contamination of drinking water and food may occur. The toxicology and pharmacology of this compound and its derivatives has been investigated extensively.[13-23] It appears from these data that death is due to ventricular fibrillation and to central nervous system excitation resulting in convulsions and respiratory failure during these convulsions. There is a great difference in action on the various animal species, in that some exhibit only cardiac symptoms (rabbit, goat, horse, spider, monkey), others only convulsions (dog, guinea pig, frog) and again others cardiac as well as central nervous system effects (cat, pig, chick, rhesus monkey). There are many transitions between these types, e.g., the rat shows respiratory depression and bradycardia but only occasionally ventricular fibrillation. It has been shown that fluoroacetate also inhibits the growth of seedlings of various plants.[24] Allsopp and Fell[39] demonstrated that fluoroacetate inhibits the beating of heart muscle cells in tissue culture, yet it does not interfere with the growth of the cell masses.

THE biochemical course of these effects has been studied extensively.[24-39] In fact fluoroacetate has been proposed to be used as a tool in biochemistry to investigate certain metabolic processes.[24] It was found that fluoroacetate inhibits oxidation in the tissues by interfering with the oxidation of acetate. These studies[24] led to the discovery of the significance of the direct oxidation of pyruvate to acetate, since it was shown that fluoroacetate had no effect on other pathways of pyruvate metabolism or on any of the oxidation enzymes of the tricarboxylic acid cycle. Fuoroacetate had no effect on a number of enzymes which were sensitive to fluoride, nor did it combine with -SH groups. Fluoroacetate inhibited the oxidation of fatty acids and produced inhibition of acetoacetate formation, and also inhibited synthesis of carbohydrate from acetate or pyruvate. It did not, however, affect acetylation processes such as the acetylation of choline, PABA or sulfanilamines. Baron, Kalnitsky and their collaborators[24-26] believe that these actions of fluoroacetate are brought about because it is as they termed "a substrate inhibitor" which competitively inhibits the formation of "active acetate (the C_2 fragment) from acetate formed from pyruvate, fatty acids or glucose. On the other hand, Elliot, Kalnitsky, Buffa, Peters, Wakelin, Lotspeich, Liebecq, Martius and Furchgott[27-34] advanced the hypothesis that fluoroacetate is transformed into fluorocitrate (or fluoroisocitrate) and thus enters the Krebs tricarboxylic acid cycle, blocking it at the citrate level.

The presence of fluorocitrate was demonstrated chromatographically although it could not be separated from the citrate. This substance prevented the utilization of citrate in vitro, however, in vivo it did not reproduce the symptoms of fluoroacetate poisoning. It has been shown that citrate accumulates in intact animals after fluoroacetate poisoning[29,30,35] and it was postulated that the toxic effects may be due partially to the depletion of calcium ions due to the accumulated citrate.[29] On the other hand, Kandel and Chenoweth[36,37] have shown that the accumulation of citrate is unrelated to the development of the symptoms of fluoroacetate poisoning. Glycerol monoacetate (monoacetin) which protected against experimental fluoroacetate poisoning, increased the accumulation of citrate in the brain. Moreover, the development of tolerance toward fluoroacetate by the administration of sublethal doses was found to be equally unrelated to the accumulation of citrate in the brain. The small quantities of citrate formed during pre-treatment with fluoroacetate did not prevent the production of further citrate when larger doses of fluoroacetate were administered. On the other hand, relationship was found between the accumulation of citrate and the intoxication with fluoro-fatty acids. The effect of the latter was not prevented by glycerol monoacetin. The effect of fluoroacetate on the bio-

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chemistry of the contraction of striated muscles was studied by Clarke and Riker.[38]

ALTHOUGH 1080 is widely used today, there are relatively few reported cases of human intoxications.[40-42] All of these cases took small but unidentified quantities of fluoroacetate and all of them recovered. The toxic dose for humans has so far not been established, but on the basis of animal studies, it has been expected to be approximately 5 mg/kg. The authors[57] have reported the first case which ended fatally. Pathological examination revealed a picture essentially similar to that reported on human and animal intoxications with sodium fluoride.[49-52] Since, however, fluoroacetate is much more toxic than sodium fluoride, it seems that the special biochemical actions of fluoroacetate produce no pathological changes of diagnostic significance. The main pathological findings were: subpericardial petechiae, hemorrhagic edema of the lungs, acute diffuse erosions of the gastro-intestinal tract, diffuse tubular degeneration of the kidneys, acute congestion of the spleen, degenerative changes of the liver, cerebral edema and petechiae in the floor of the forth ventricle and the substantia nigra. Death seemed to be due to the failure of the heart, exhaustion because of cramps of central origin, and probably toxic depression of the respiratory and vasomotor centers. The clinical course demonstrated that in humans the central nervous system as well as the cardiac effects are manifested. Toxicological examination revealed a relative uniform distribution of fluoroacetate in the organs and body fluids. Similar results were obtained in experimental poisoning of rats.[53] Evidence was presented[57] that a circulatio-gastroentero-hematica may exist, and Brandl and Tappeiner,[54] Gadaskina and Shtessel[55] have already presented data on the excretion of fluoride through the gastro-intestinal tract, and Charnot[56] demonstrated fluoride excretion in the bile). Therefore, it was suggested in view of these toxicological findings and pertinent literature on fluorides that repeated gastric lavages should be administered to victims of fluoroacetate poisoning. From the total quantity of the poison recovered it was estimated that a minimum of 6 mg/kg fluoroacetate had been ingested in the above case.[57] The distribution of fluorine in cases of sodium fluoride poisoning and in normal organs has been described by Roholm and others.[46-48,54,55] Chenoweth[58] has reviewed in detail the relationship between chemical structure and activity of related compounds.

THE therapy of fluoroacetate poisoning is mainly symptomatic. Anticonvulsants, sedatives, respiratory and vasomotor stimulants, oxygen, transfusions, drugs to combat ventricular fibrillation are used. However, there are some indications in the experimental literature of specific antidotes.

Sodium acetate antagonized fluoroacetate poisoning in vitro and in mice under certain conditions, but not in other species.[45] Various substances have been tested in animals with the expectation that they may yield acetate during their metabolism, thus acting as acetate donors. Glycerol triacetate (triacetin) was effective but highly toxic in itself,[43] glycerol monoacetate (monoacetin) was found to be effective and less toxic[44] and finally ethanol was also found to be effective (including one successfully treated human case[42]) especially if combined with sodium acetate.[45]

Because of the rapidly increasing use of fluoroacetate, further studies of its toxicological and therapeutic aspects seem to be imperative.

References

1. KALMBACH, E. R.: "Ten-Eighty," War-Produced Rodenticide. *Science*, 102:232 (August 31) 1945.

2. I. G. FARBENINDUSTRIE, A. G.: German Patent 504:886 (September 14) 1927. cit: BOCKENMUELLER, W.: Organische Fluorverbindunger, in *Sammlung Chemischer und Chemisch-technischer Vortraege*, No. 28:89 Stuttgart, 1936.

3. MARAIS, J. S. C.: Monofluoroacetic Acid, the Toxic Principle of "Gifblaar." *Dichapetalum cymosum (Hook) Engl., Onderstepoort J. Vet. Sc. & Animal Industr.*, 20:67, 1944. cit: *Chem. Abstr.*, 39:4116, 1945.

4. ORMYBLE, R. A.: A Summary of Field Reports on 1080 (Sodium Fluoroacetate). Natl. Research Council, Insect Control Committee, Report No. 163: (December 17) 1945.

5. Instructions for using Compound 1080 (Sodium Fluoroacetate) as a Rodent Poison. Ibid., (January) 1946; revised: ibid (July) 1946.

6. PHILIPS, F. S.: Symposium on Advances in Pharmacology Resulting from War Research: Insecticides and Rodenticides. *Federation Proc.*, 5:292 (June) 1946.

7. HUGHES, J. H.: Studies in Deratization of Surface Vessels by Means of 1080 (Sodium Fluoroacetate). *Pub. Health Rep.*, 62:933 (June 27) 1947.

8. DUBOIS, K. P.: New Rodenticidal Compounds. *J. Am. Pharm. A. (Scient. Ed.)*, 37:307 (August 28) 1948.

9. GRATCH, I., PURLIA, P. L., and MARTIN, M. L.: Effect of Sodium Fluoroacetate (1080) in Poisoned Rats on Plague Diagnosis Procedures: Preliminary Reports. *Pub. Health Rep.*, 64:339 (March 18) 1949.

10. WARD, J.: *Pests.*, 13:16, 1945.

11. Compound 1080 as a Rodenticide. Wildlife Research Lab., U. S. Fish and Wildlife Service (April) 1946.

12. SCALES, J. W.: *Agr. Leader's Digest*, 27:38 (May) 1946.

13. DIEKE, S. H., and RICHTER, C. P.: Comparative Assays of Rodenticides on Wild Norway Rats. *Pub. Health Rep.*, 61:672 (May 10) 1946.

14. WARD, J. C., and SPENCER, D. A.: Notes on the Pharmacology of Sodium Fluoroacetate—Compound 1080. *J. Am. Pharm. A. (Scient. Ed.)*, 36:59 (February) 1947.

15. CHENOWETH, M. B., and GILMAN, A.: Studies on the Pharmacology of Fluoroacetate: I. Species Response to Fluoroacetate. *J. Pharmacol. & Exper. Therap.*, 87:90 (June) 1946.

16. CHENOWETH, M. B., and GILMAN, A.: Studies on the Pharmacology of Fluoroacetate: II. Action on the Heart. *Bull. U. S. Army M Rept.*, 7:687 (August) 1947.

17. CHENOWETH, M. B., and GILMAN, A.: Pharmacology of Fluoroacetate. *Fed. Proc.*, 5:171 (March) 1946.

18. CHENOWETH, M. B., and ST. JOHN, E. F.: Studies on the Pharmacology of Fluoroacetate. III. Effects on the Central Nervous System of Dogs and Rabbits. *J. Pharmacol. & Exper. Therap.*, 90:76 (May) 1947.

19. CHENOWETH, M. B., and ST. JOHN, E. F.: Spike and Dome Formation Produced in Dog's Encephalograms by Fluoroacetic Acid, Epilepsy. *A. Research Nerv. Ment. Dis. Proc.*, 26: 299 (December 13) 1947.

20. FOSS, G. L.: The Toxicology and Pharmacology of Methyl Fluoroacetate (MFA) in Animals, with some Notes on Experimental Therapy. *Brit. J. Pharmacol.*, 3:118 (June) 1948.

21. WARD, A. A., JR.: Convulsive Activity Induced by Fluoroacetate. *J. Neurophysiol.*, 10:105 (March) 1947.

22. QUIN, J. L., and CLARD, R.: Studies on the Action of Potassium Monofluoroacetate (CH_2FCOOK) (Dichapetaloum Chymosum (Hook) Engl.) Toxin on Animals. *Onderstepoort J. Vet. Sc. & Animal Industr.*, 22:77, 1947.

23. KAREL, L.: The Rodenticidal Activity of Fluoroacetphenylhydraride ("Fanyline") and its Oral Toxicity to Several Species

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with a Note on the Toxicity of 64 Other Candidate Rodenticides. *J. Pharmacol. & Exper. Therap.*, 93:287 (July) 1948.

24. BARTLETT, G. R., and BARRON, E. S. G.: The Effect of Fluoroacetate on Enzymes and on Tissue Metabolism; Its Use for the Study of the Oxidative Pathway of Pyruvate Metabolism. *J. Biol. Chem.*, 170:67 (September) 1947.

25. KALNITSKY, G., and BARRON, E. S. G.: The Effect of Fluoroacetate on the Metabolism of Yeast and Bacteria. *J. Biol. Chem.*, 170:83 (September) 1947.

26. KALNITSKY, G., and BARRON, E. S. J.: The Sulubition by Fluoroacetate and Fluorobutyrate of Fatty Acid and Glucose Oxidation Produced by Kidney Homogenates. *Arch. Biochem.*, 192:75 (October) 1948.

27. ELLIOTT, W. B., and KALNITSKY, G.: Mechanism for Fluoroacetate Inhibition. *J. Biol. Chem.*, 186:487 (October) 1950.

28. LIEBECQ, C., and PETERS, R. A.: Toxicity of Fluoroacetate and the Tricarboxylic Acid Cycle. *Biochem. et Bioplys. Acta*, 3:215 (April) 1949.

29. BUFFA, P., and PETERS, R. A.: The In Vivo Formation of Citrate Induced by Fluoroacetate and its Significance. *J. Physiol.*, 110:488 (December) 1949.

30. BUFFA, P., and PETERS, R. A.: Formation of Citrate In Vivo Induced by Fluoroacetate Poisoning. *Nature, London*, 103:914 (June 11) 1949.

31. MARTIUS, C.: The Interruption of the Citric Acid Cycle by Fluoroacetic Acid. *Ann.*, 561:227, 1949.

32. FURCHGOTT, R. F.: The Effect of Sodium Fluoroacetate on the Contractility and Metabolism of Intestinal Smooth Muscle. *J. Pharmacol. & Exper. Therap.*, 99:1 (May) 1950.

33. BUFFA, P., LOTSPEICH, W. D., PETERS, R. A., and WAKELIN, R. W.: Fluoroacetate Poisoning and "Jamming" of the Tricarboxylic Acid Cycle; Mode of Action of an Active Fluoro Compound Synthetized via This Cycle. *Biochem. J.*, 47:17 (June-July) 1950.

34. BUFFA, P., PETERS, R. H., and WAKELIN, R. W.: Biochemistry of, Fluoroacetate Poisoning: Isolation of an Active Tricarboxylic Acid Fraction from Poisoned Kidney Homogentates. *Biochem. J.*, 48:467 (4) 1950.

35. POTTER, V. R., BUSCH, H., and BOTHWELL, J.: Method for the Study of Tissue Metabolism In Vivo Using Fluoroacetate. *Proc. Soc. Exper. Biol. Med.*, 76:38 (January) 1951.

36. KANDEL, A., and CHENOWETH, M. B.: Metabolic Disturbances Produced by Some Fluorofatty Acids: Relation to the Pharmacologic Activity of these Compounds. *J. Pharmacol. & Exper. Therap.*, 104:234 (February) 1952.

37. KANDEL, A., and CHENOWETH, M. B.: Tolerance to Fluoroacetate and Fluorobutyrate in Rats. *J. Pharmacol. & Exper. Therap.*, 104:248 (February) 1952.

38. CLARKE, D. A., and RIKER, W. F., JR.: The Effect of Fluoroacetate on the Sartorius Muscle of the Frog. *J. Pharmacol. & Exper. Therap.*, 99:118 (May) 1950.

39. ALLSOPP, C. B., FELL, H.: The Effect of Fluoroacetate on Beating of Embryonic Chick Heart in Tissue Culture. *J. Exper. Cell Res.*, 1:590, 1950.

40. GAJDUSEK, D. C., and LUTHER, G.: Fluoroacetate Poisoning. *Am. J. Dis. Child.*, 79:310 (February) 1950.

41. WILLIAMS, A. T.: Sodium Fluoroacetate Poisoning. *Hosp. Corps Quart. (No.1)*, 21:16 (January-March) 1948.

42. WRIGHT, E. R.: Personal Communication, cit. in: HUTCHEWS, J. O., WAGNER, H., PODOLSKY, B., and MCMAHON, T. M.: The Effect of Ethanol and Various Metabolites on Fluoroacetate Poisoning. *J. Pharmacol. & Exper. Therap.*, 95:62 (January) 1949.

43. CHENOWETH, M. B., KANDEL, A., JOHNSON, L. B., and BENNETT, D. R.: Factors Influencing Fluoroacetate Poisoning. *J. Pharmacol. & Exper. Therap.*, 102:31 (May) 1951.

44. CHENOWETH, M. B., SCOTT, E. B., and SEKI, S. L.: Prevention of Fluoroacetate Poisoning by Acetate Donors. *Fed. Proc.*, 8:280 (March) 1949.

45. TOURTELLOTTE, W. W., and COON, J. M.: Synergistic Effect of Sodium Acetate and Ethanol in Antagonizing Sodium Fluoroacetate (1080) Poisoning in Mice. *Fed. Proc.*, 8:339 (March) 1949. Treatment of Sodium Fluoroacetate (1080) Poisoning in Dogs. *Fed. Proc.*, 9:321 (March) 1950.

46. ZDAREK, E.: Ueber die Verteilung des Fluors in den einzelnen Organen des Menschen. *Hoppe Seyler's Z.*, 69:127 (October 24) 1910.

47. GAUTIER, A., and CLAUSMANN, P.: Le Fluor dans l'Organisme Animal; Cerveau, Glandes, Muscles, Sang, Lait, Excretions. *C. R. Acad. Sci. Paris*, 157:94 (July 15) 1913.

48. ROHOLM, D.: Fluorine Intoxication. Copenhagen, 1937. Fluorschädigungen. Leipzig, 1937. *Klin. Wchnschr.*, 15:1425, 1936, in: Hefter's Handbuch d. Exp. Pharmakol. Berlin, Suppl. Vol. No. 7, p. 1, 1938.

49. TAPPEINER, H.: 1. Zur Kenntnis der Wirkung des Fluornatriums. *Arch. J. exp. Path. Pharmakol.*, 25:203 (April 10) 1889. 2. Mitteilung über die Wirkung des Fluornatriums. ibid 27:108 (February 21) 1890.

50. HEIDENHAIN, R.: Nene Versuche über die Aufsaugung im Dündarm. *Pfluegers Arch.*, 56:579 (May 26) 1894.

51. HEDSTROEM, H.: *Skand. Vet. Tiesskr.*, 22:55, 1932.

52. DALLA VOLTA, A.: Zur Kenntnis der experimentellen Flurornatriumvergiftung. *Dtsch. Z. f. d. ges. ger. Med.*, 3:242, 1924.

53. RAMSEY, L. L., and CLIFFORD, P. A.: Determination of Monofluoroacetic Acid in Foods and Biological Materials. Presented at the May 12, 1949 Meeting of the Washington Section of the Am. Chem. Soc.

54. BRANDL, J., and TAPPEINER, H.: Ueber die Ablagevung von Fluorverbindungen im Organismus nach Fütterung mit Fluornatrium. *Z. Biol.*, 28:518, 1891.

55. GADASKINA, I. P., and SHTESSEL, T. A.: Resorption, Distribution and Elimination of Fluorine after Experimental Poisoning with Sodium Fluoride. *Fiziol. Zhur.*, 19:1245, 1935.

56. CHARNOT, A.: Influence de quelque composes mineraux sur les effets toxiques du fluorine de calcium. *Bull. Acad. Med. Paris*, 120:224 (October) 1938; *Bull. Inst. Hyg. Maroc.*, 1937, No. II-III, 45.

57. HARRISSON, J. W. E., AMBRUS, J. L., AMBRUS, C. M., et al.: Acute Poisoning with 1080 (Sodium Fluoroacetate), with Note on the Distribution of Fluoroacetate in the Organism. *J.A.M.A.* (Accepted for publication).

58. CHENOWETH, M. B.: Monofluoroacetic Acid and Related Compounds. Review No. 2, Chemical-Biological Coordination Center, Washington, D.C. *J. Pharm. Exper. Therapy*, Part II. 97:383 (December) 1949.

A Point of View

PSYCHOSOMATIC medicine essentially is not a specialty but a point of view, and an approach which applies equally to medical and surgical problems. It is basic medicine which has needed re-emphasis. The compassionate aspect of medicine has perhaps been rather overshadowed by the rapid growth of techniques of investigation and by the present abundance of specific remedies. The best physicians and surgeons have long regarded their patients as individuals with backgrounds which may influence their illnesses. Some medical men, because they have been too hurried or too poorly trained, may have tended to think only in terms of the immediate disease process and have not had a sympathetic understanding of the patient's problems. There is no doubt that many patients benefit merely from the taking of a detailed history at leisure and in privacy, and the unburdening of their story, often untold to others, may save many weeks of attendances at outpatient departments or surgeries. But "psychosomatic" is an unnecessary term, and the sooner it is dropped from the current literature the better. —*Connecticut State Med. J.*, March, 1952, quoting an Editorial in *British Med. J.*

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Causalgia

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THERE has been much confusion concerning diagnosis, treatment and etiology of the causalgic states. Certain writers have held that true causalgia as originally described by Wier Mitchell, Sudech's atrophy, painful osteoporosis, and the so-called minor causalgias are but different expressions of the same underlying disorder, and, indeed, painful phantom limb has been included. Other writers have been equally convinced that true causalgia is a clinical entity unrelated to the less severe states. For a time the writer found himself in the latter group, but with increasing experience this view has altered somewhat, so that now it is believed probable that the majority of the painful post-traumatic dystrophies, with the exception of painful amputation stump and true hysteria, are expressions of the same underlying disorder. The confusion which has prevailed and the wide differences of opinion which have arisen seem to have developed from the tendency on the part of various authors to pursue features of these syndromes that differ, rather than to seek a common denominator among them.

It is the purpose of this paper to present in summary the data from 105 cases of true causalgia seen in the military service and treated by sympathectomy (already reported elsewhere in papers by the author with Devine and with Ulmer). These data appear to permit support of the theory of Granit, Leksell and Skoglund, and of Doupe, Cullen and Chance, relating to the causative mechanism, namely that it is a shunt of efferent sympathetic impulses into the sensory somatic fibers at the site of injury to the nerve.

In the 105 cases upon which this paper is based, a penetrating wound of large peripheral nerves was the causative agent in each. The nerve injury was incomplete in every instance. In an overwhelming majority of cases the median or sciatic nerve was involved. The onset of pain was instantaneous in approximately 50%. In the remainder the onset was delayed for intervals varying from 14 hours to three months. None was associated with injury to the major blood vessels, and infection of the wound was rarely encountered. The ages ranged from 19 to 39 years. The disease was observed in approximately 5% of all patients admitted to the Percy Jones General Hospital with wounds or peripheral nerves.

The outstanding complaint in each case was burning pain. Usually it was most intense in the autonomous zone of the involved nerve. While the pain was continuous, it was exaggerated by emotional and environmental stimuli. It was associated with vasomotor manifestations of two types, one vasodilatation and the other vasoconstriction. Generally the skin of those in vasodilatation was dry, scaly and warmer than the normal extremity, and the hair of this member was often long and coarse. The skin of those in vasoconstriction was usually cold, thin, and glistening, and sweated profusely. In this group there usually was loss of hair and tapering of the digits. Vasodilatation was a more common phenomenon than vasoconstriction. In a small percentage of the patients, no alteration in blood flow was noted.

Many patients obtained some relief of pain from the application of moisture to the painful part. When the extremity was in vasodilatation, cold water gave relief. When the part was in vasoconstriction, warm water produced comfort. Weir Mitchell believed that moisture was the factor which produced relief. Our own observations indicated that the temperature was responsible, for patients in vasoconstriction with malarial fever were relieved during the bouts of elevated temperature, and this was confirmed when artificial fever was induced. On the contrary, patients who were in vasodilatation experienced exacerbation of the pain when the temperature of the painful part was elevated.

Emotional stimuli, such as fear, anger, and/or disturbing noises produced exacerbations of pain. The slightest motion or touch of the part was painful. In the more severe cases, the patients' facial expressions reflected severe pain. They usually grasped the painful extremity just proximal to the wrist or ankle to hold it immobile. They would avoid emotional and environmental stimuli by seclusion in a dark room. As a rule they showed no interest in family or friends, even though they had been absent overseas for many months.

Many patients of this group were submitted to psychiatric interview after the pain was relieved by sympathectomy, and no evidence of predisposing constitutional factors was revealed. With rare exceptions, the individuals proved to be entirely stable. The high-strung, tense individuals appeared to experience more severe exacerbations of pain than the more placid types.

Approximately 20% of the patients showed spotty osteoporosis of the small bones of the extremity. The remainder showed no change.

Treatment

BLOCK of the appropriate sympathetic chain with procaine would produce dramatic relief. As a rule the relief following procaine injection would persist for one to two hours, or approxi-

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mately the period that a local infiltration is effective. In a few cases the pain remained greatly reduced for prolonged periods after the injection. In none did it remain completely well, though many patients were given six to eight injections. This is in contrast to the experience of certain writers, and indeed the author has observed lasting relief by this procedure in an occasional case of minor causalgia.

Neurolysis was done on many of these patients without relief. Periarterial neurectomy at the level of injury on eight provided no relief. Periarterial neurectomy of the proximal portion of the vessel was not done. In six patients resection of the injured segment of nerve was done, and complete relief of pain followed. In the remainder, relief was provided by sympathectomy. In nine patients, the initial sympathectomy failed to provide complete relief. In two of these in which the arm was involved, it was shown subsequently that the fourth rib had been inadvertently removed instead of the third, and that the sympathectomy was incomplete. In seven cases in which the lower extremity was involved, some pain persisted after removal of the second and third lumbar ganglia. Sweating tests revealed that the sympathectomy was incomplete. In two of these removal of the first lumbar ganglion was sufficient to complete the sympathectomy and relieve the pain. In five, dorsal ganglia 11 and 12 were removed, after which the sympathectomy was complete and relief was provided. No patient was permanently relieved by repeated procaine blocks. Two patients previously discharged from other neurosurgical centers as cured by repeated procaine blocks subsequently developed a recurrence of pain after being transferred to the Convalescent Hospital attached to our unit, and these were treated by sympathectomy with relief.

The chief residual after relief of pain by sympathectomy consisted of stiffness of the small joints of the hand, which was attributable to prolonged disuse. It was frequently difficult to overcome. The other residual depended upon the extent of the nerve injury.

Comment

AMONG the theories relating to the causative mechanism in this disorder are infections neuritis and fibrosis about the nerve. The fact that infection was rarely observed and the onset of the pain so often occurred at the moment of impact disprove this hypothesis, and the frequent early development of pain also disproves fibrosis about the nerve at the site of injury as a factor. The complete absence of vascular injury in this group eliminates this theory from consideration. Certain writers have considered ischemia to be a factor. Others have thought that hyperemia induced the pain. However, many patients are observed in vasoconstriction, while others are in vasodilatation, yet the pain is relieved by interruption of the sympathetic chain. This would make it appear that the alterations in blood flow are the result of pain rather than the cause of it.

Psychogenic factors influence the pain remarkably but cannot be considered as the etiologic agent, for many of the patients with whom this paper is concerned had withstood emotional experiences far greater than that of the wound without such complaints. Furthermore, when relieved of the pain, all evidence of emotional instability disappeared.

The spotty osteoporosis, considered a cardinal feature of Sudech's atrophy or painful osteoporosis, probably is not a causative factor in the production of pain, for it was noted in less than 20% of the patients of this group, and my own experience would indicate that it is not a consistent finding in the minor causalgias.

In 1944, Granit, Leksell and Skoglund recalled attention to the fact that there is a constant interplay of impulses between the sympathetic and somatic fibers of any mixed nerve. This interplay is greatly increased when a segment of nerve has been injured, probably as the result of fragmentation of myelin at the site of injury, and they advanced the hypothesis that the underlying mechanism in the causalgic states was a shunt of efferent sympathetic impulses into the sensory fibers at the site of injury. Doupe, Cullen and Chance, on the basis of clinical experience and laboratory evidence supported this view, and more recently White, Heroy and Goodman have given added support, and the writer finds that his own observations are compatible with this view.

With rare exceptions, causalgia results from nerve wounds that are incomplete. The onset of pain may be instantaneous or may be delayed for several weeks. Excision of the injured segment of nerve always provides relief of pain, and complete sympathectomy of the involved part has provided relief in every instance of the writer's experience. Neither external or internal neurolysis influences the pain. Periarterial neurectomy when done at the site of injury does not influence the pain. The author has had no experience with periarterial neurectomy done on the proximal portion of the vessel, as advocated by Leriche. However, it is not believed that periarterial neurectomy interrupts fibers that are not also included when removal of the appropriate portion of the ganglianated chain is accomplished, as suggested by Hermann, Caldwell and Reineke. As pointed out by White, Heroy and Goodman, the emotional and environmental factors which exaggerate the pain in patients with causalgia, and which in the past were thought to be evidence that the disease was hysterical, have one common denominator, namely, the increase of the outflow of efferent impulses from the hypothalmus over the sympathetic chain. The factors which provide relief of pain in the causalgic states, such as quiet or sleep, the application of warm water in vaso-

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constriction or cold water in vasodilatation, are factors which reduce the outflow of sympathetic impulses from the hypothalmus. The majority of the data, therefore, seemed compatible with the hypothesis that the pathologic mechanism of causalgia does indeed consist of a shunt of impulses from the sympathetic nerves into the sensory fibers at the site of injury to a mixed nerve.

It is difficult to explain on this hypothesis, however, the relief which is reported at times by one or more procaine injections of the sympathetic chain, and the occasional failure reported by certain writers when sympathectomy was done. It is possible that the failure of sympathectomy to provide relief at times is due to an incomplete sympathectomy as the result of anomalous innervation when the lower extremity is involved, as has been shown in seven cases in this group, or to the inadvertent removal of the wrong rib when dorsal sympathectomy is performed, as has occurred in two cases in my own experience.

The spontaneous recovery which is observed in cases of causalgia may be due to the re-deposit of myelin about the sensory fibers, thereby arresting the shunt. The relief which is reported for repeated novocaine blocks remains the most difficult phenomenon to account for. My own experience in the management of true causalgia suggests that the relief may be relative. A patient who is suffering intense pain may mistakenly regard himself as completely well for a short time if his pain is greatly reduced. It is also possible that repeated injections may hold the pain in abeyance sufficiently to permit spontaneous healing of the lesion.

Without discussing the minor causalgias, it may be in order to state the opinion that the causative mechanisms in true causalgia and the so-called minor causalgias are similar. It is probable that the differences are ones of degree. In true causalgia, with rare exceptions, the lesion is of a large mixed nerve and is the result of a penetrating wound, whereas in the minor causalgias, mild trauma about the small joints is a more frequent cause. It is possible that the complaint of intense burning pain in true causalgia, as compared to a throbbing, aching pain in the less severe states, which is the chief difference, may be accounted for by the involvement of large numbers of superficial sensory nerves in one case, as compared to smaller nerves which serve tendons and ligaments in the other.

Summary

THE data from 105 cases of true causalgia observed in the military service suggest that the painful mechanism of causalgia consists of a shunt of sympathetic impulses into the sensory fibers at the site of injury.

The diagnosis of causalgia can be established by block of the appropriate sympathetic chain with procaine, and it appears that repeated injections occasionally may provide relief. In the great majority of instances, however, appropriate sympathectomy should be carried out. For the arm, the dorsal preganglionic sympathectomy of Smithwick is the procedure of choice. When the lower extremity is involved, removal of ganglia L-2 and L-3 is effective in most instances. If this procedure fails to provide relief, sweating tests should be made to determine if the sympathectomy is complete, for, in occasional instances, removal of the L-1 ganglion or the dorsal chain as high as D-11 may be necessary. While periarterial neurectomy unquestionably will provide relief in certain cases of minor causalgia or painful osteoporosis, this operation appears to hold no advantage over removal of the appropriate portion of the sympathetic chain, and it is more likely to fail. The risks and morbidity of the two operations are comparable. It is believed that treatment should be carried out early to avoid the crippling stiffness of disuse of the small joints and the psychic trauma of prolonged pain.

(2314 Auburn Ave.)

Why Is a Yawn "Catching?"

YAWNING may be considered to be a form of inspiration tic, associated with dyspnea. P. Janet describes yawning as related to sighing, sobbing, and hiccoughing, and refers to it as an example of "imitative contagion" (The Major Symptom of Hysteria, New York, The Macmillan Company, 1907, p. 259). It is a complex nervous respiratory reflex associated with mild boredom, irritating mental effort, or mild emotional anxiety. It is classified by R. Burton-Opitz (A Textbook of Physiology: For Students and Practitioners of Medicine, Philadelphia, W. B. Saunders Company, 1920, pp. 592-593) among the association or perception reflexes. These "skirt the realm of volition without being actually influenced by it and may be invoked in us in consequence of a visual impression of some one else already engaged in the act." Yawning is catching as a conditioned visual reflex when persons in a group are subjected to the same general boring or frustrating environment.

—From "Queries & Minor Notes," *J. A. M. A.*, 148:16 (August 16) 1952.

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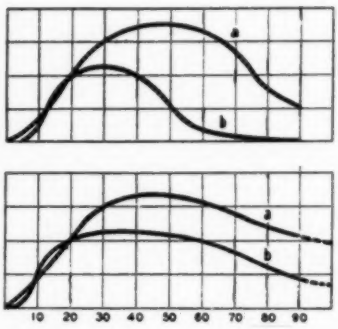
What is Expected of Constructive Medicine?

THE objects are: the increase of the individual's capacity for work, and the prolongation of his productive life.

In the graph at the right the numbers express the age of a person in years; the lines marked (a) show the mental capacity of same, while the lines marked (b) show their physical capacity.



In the upper section, the line (a) shows that the mental development of a person is considerable at 20 years of age, continues to increase to 50, then declines slowly, reaching a low level at an advanced age. The line (b) shows that physically the individual is at his best from 20 to 40 years, his fitness then declining rapidly. Precisely when a human being has accumulated most experience, possessing considerable mental powers, his physical well-being declines so rapidly that only too often he is unable, on account of invalidism, to make use of his accumulated experience and fully developed mental capacity. This is what happens in the majority of cases. The individual's health breaks down precisely when he is most capable mentally and when he is most needed by society.

The lower section endeavors to show the purposes of constructive medicine, which are to diminish the rate of decline of the mental capacity marked by line (a) and prolong the physical fitness marked by line (b), so that his physical health may run as parallel to his mental capacity as possible.

The importance of keeping a man who is in his second half of life mentally and physically fit, is easily understood if it is accepted that within industry, any person passes through three stages during which his usefulness as an employee varies.

During the first one, when an employee is new, the organization does not benefit, materially speaking, since he has no experience, no maturity, and it may be said that he costs the organization more than he yields. When he enters into the second stage, there is a balance between costs to the organization and his useful work. It is only during the third stage that the organization becomes benefited by his experience, knowledge and good judgment, and the individual is able to repay the organization for its initial loss. The third stage usually coincides with the second half of his working life, which is therefore the period in which constructive medicine takes most interest.

The concept that the mature man is the one of greatest value, and will be even more so in the future, is not new. The complexity of modern civilization requires this type of individual, the situation differing from past times, when young men were able to solve many of the fairly simple problems of daily life. Henry Ford expressed the point of view that men between 50 and 60 years of age are those who will best adapt themselves to jobs that require continuity, persistency and true interest. Simler, on the other hand, had made careful questionnaires and research, arriving at the conclusion that men of more than 40 years of age yield better work, accept with more ease disagreeable tasks, have greater capacity for organization and show greater sense of responsibility in non-supervised tasks, while younger men have the advantage over them only on account of their better appearance, good humor, enthusiasm, etc. Visher states the ages at which different artists and professionals have accomplished their master works: chemists and physicists at 41 years, poets at 44, generals at 47, composers at 48, painters at 50, physicians at 52, philosophers at 54, astronomers and methematicians at 56, historians at 57, and jurists at 58.

THE DISEASES IN CONSTRUCTIVE MEDICINE: There are several manners in which any one disease can be viewed. For example, tuberculosis; the practicing physician is mainly interested in diagnosis and treatment, while the public health officer views the problem differently. Brucellosis is also a problem of diagnosis and treatment for the general practitioner, while the public health officer concerns himself more with the domestic animals as the transmitting agents. In the same fashion, constructive medicine has a different way of viewing medical problems.

Constructive medicine views diseases as classified into two groups; that is, reversible diseases (mainly, although not only, acute ones), and irreversible (mainly the so-called degenerative diseases). To carry out the principles and practices of constructive medicine to the benefit of an individual, it is necessary to take an interest in reversible diseases, since it is essential to count on a person with optimum health. This involves diagnosis and treatment of all such conditions. However, the degenerative diseases are those with which this subject deals specifically. Degenerative diseases are chronic, and characterized by permanent progressive structural and functional changes of tissues, organs and systems. Many examples can be given of degenerative diseases, the principal ones being arteriosclerosis, hypertension, peripheral vascular diseases, various heart ailments, diabetes mellitus, chronic bronchitis, bronchial asthma, emphysema, glomerulonephritis, nephrosclerosis, cirrhosis of the liver, rheumatism, malignant tumors, etc.

Considering the evolution of these diseases it can be said that they go through four stages: (a) Potential stage. (b) Incipient disease. (c) Effective existence. (d) Final and death.

Most of them, before causing the death of an individual, are responsible for a period of invalidism which varies in duration, being equivalent to the death of the individual from the point of view of his yielding capacity in society.

From "Constructive Medicine," by V. D. L. SCHRADER, M.D., and F. F. ALBORNOZ, M.D., "Esso Productora de Petroleo, S.A.," in *The Medical Bulletin*, Standard Oil Company (New Jersey), 12:2, 235 (April) 1952; the article being a condensation of a series of lectures delivered at the Institute of Hygiene, University of Tucumán, Argentina, to a group of Argentine students specializing in Public Health.

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Multiphasic Screening—Occupational Diseases

— Section on Industrial Medicine and Surgery, Medical Society of the State of New York —

Reported by

S. CHARLES FRANCO, M.D.

Consolidated Edison Company of New York City, Inc.

THE FOLLOWING summarizes the proceedings of the meeting of the Section on Industrial Medicine and Surgery at the Annual Convention of the Medical Society of the State of New York, at New York City, May 14-15, 1952.

Multiphasic Screening Technics

DR. M. L. LEVIN reviewed the problem of chronic illness, and touched on its direct relationship to industry. He stressed that laboratory procedures used in multiple screening were not diagnostic tests, and reiterated that the physician through periodic examinations was in the best position to detect disease at an early stage. Multiple screening may serve as an initial step or final step to this examination, but it does not replace it.

DR. V. A. GETTING presented the experience of the Massachusetts Department of Public Health with multiphasic screening in five Research Clinics which were set up in cooperation with the State Medical Society. The average cost of the total screening tests themselves was $2.34, including a self-screener history. When the expense of physical examination and administration costs were included the figure varied from $10.04 to $8.29 in the two clinics reported on. The limitations of such tests as temperature, blood pressure, hearing acuity, and the self-screener were such that they probably would best be dropped from such a program. DR. GETTING visualized multiple screening as an integrated system of laboratory tests which would bring valuable information to the physician.

DR. W. G. SMILLIE stated that he was pleased that all the presentations stressed the maintenance of the doctor-patient relationship. However, the original program of multiple screening for early detection of chronic degenerative disease as it had been practiced had deficiencies which he reviewed as follows:

1. The physician had no opportunity to secure knowledge of the patient, and in addition the "well people" were not seen by the physician.
2. The individual being tested thought he was getting a diagnostic examination, and this could lead to a false sense of security.
3. A "false positive" interpretation could cause any of the following: (a) unnecessary anxiety; (b) expensive tests and examination to prove it was false; (c) lack of faith in the procedure.
4. "False negatives" could lead to overlooking real clinical conditions.
5. Screening findings are static and have little relation to factors bearing on the life of the individual.

DR. SMILLIE concluded that mass methods were not applicable to detection of degenerative disease. He recommended that the laboratory studies be fitted into the framework of the clinical examination.

In the general discussion that followed it was pointed out that in industry the periodic examination was the best means of early detection of chronic degenerative disease. The accomplishment of certain laboratory studies prior to the examination so that they were available to the physician would expedite the clinical examination and allow it to be done in one visit. The procedure could be further improved if the patient were to complete a short personal history questionnaire prior to his examination. It was estimated that a half-hour period would be adequate to accomplish a good examination and give pertinent health counselling.

IN THE latter portion of the program DR. D. W. FASSETT presented a paper in collaboration with DR. J. H. STERNER on "The Value and Limitations of Screening Techniques in Industrial Hygiene." He reviewed the development and evaluation of methods for the study of occupational diseases and for the control of chemical exposures. DR. FASSETT stated that the objective in regard to occupational illness is not so much that of spotting obvious disease as detecting the earliest possible deviation from normal. To obtain these objectives he outlined three methods of approach.

1. The epidemiological approach which consists of statistical analysis of such general factors as total absence from work, percent of time lost due to illness, cause of visits to Medical Department, and incidence of specific symptoms or disease.
2. The study of individuals by the taking of histories and physical or laboratory examinations.
3. A careful statistical analysis of the data obtained on such examinations and comparison of the findings in exposed groups with non-exposed groups of comparable age, sex, etc.

The second method involves the actual examination and study of the patient. This is the most difficult and time-consuming, but in general the most rewarding of all procedures. The type of examination carried out depends to some extent on the character of the exposure. DR. FASSETT recommended that the findings be recorded on a form in such a way that all essential data can later be abstracted and tabulated. The present form in use at the Eastman Kodak Company is relatively simple but combines in one sheet those features of the examination which experience has shown will "pay off." The questions are designed to alert the examiner to the presence of the occupational or non-occupational disease. The results are recorded in most instances as present or absent, or in some cases by a simple grading system.

Occupational disease screening differs somewhat from other types of screening in that the primary objective is often the detection of slight shifts in group characteristics, rather than uncovering manifest disease in individuals. The experience of DR. FASSETT and DR. STERNER indicates that hemoglobin,

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cell volume, white and differential counts, cephalin flocculation, urine study, and x-rays will be the most efficient of the common laboratory tests in the detection of occupational or non-occupational disease.

In a discussion of this paper DR. A. J. LANZA reviewed the basic procedures involved, and stressed that a knowledge of the working environment was important in reaching a diagnosis.

Occupational Disease Prevention and Diagnosis

DR. N. E. ECKELBERRY reviewed the role of the physician in industry in the accident and occupational disease prevention program. In the small industry the whole scope of the safety program falls within the function of the plant physician. In those industries where, owing to the size of the organization or the type of manufacturing process, the direct preventive program is the function of the safety engineer and the industrial hygienist, the physician in industry should be an active part of the team. He should be kept informed of the safety rules and regulations and consulted in proposed changes and improvements. He should be a member at least in a consulting capacity of the committee that reviews and analyzes the cause, classification and determination of responsibility of the accidents that do occur. He should be told when new processes are introduced or new materials used or made.

DR. ECKELBERRY stressed some phases of the prevention program which are exclusively the function of the physician. Of importance are the pre-placement, periodic health, and pre-transfer and return-after-sick absence examinations to determine whether any physical restrictions of job performance are present which would interfere with the employee performing the job without risk to himself or others.

DR. I. R. TABERSHAW presented an interesting paper dealing with emotional factors in safety education. This history of the safety movement is based on the concept that accidents are not "unforeseen" events that can be prevented by measures aimed at removing the cause. Physical causes are obviated by engineering methods but complete control is hard to achieve, since accidents result from many different conditions. During the early years of the safety program the most obvious accident causes were singled out. Attention to physical conditions brought fruitful results. However, as data on large numbers of accidents were gathered and analyzed, it became evident that physical conditions accounted for less than 20% of all accidents; the remainder, more than 80%, were traceable to faulty human actions. In addition to engineering failures the constitutional, emotional and mental make-up of the individual influences the occurrence of the accident.

Safety education at present includes such elements as training, awards, competitions, etc. These educational measures are effective only if the individual worker is motivated not to have accidents. Persons frequently have motives for accidents and for prolonging convalescence after an accident which are not recognized by themselves or their colleagues. Any effective program of training in safety must be aware of these possibilities as well as of the more positive emotional factors, such as the personal and social responsibility of the individual.

In the general discussion following these two papers attention was directed to various means of dealing with the problem of human relations in a program of accident prevention. All present appreciated that the role of the physician in industry places him in close contact with human relations and felt that it would be worth-while for the physician to have a place in the accident prevention program and acquaint supervision and worker, in a non-medical way, with some of the facts dealing with human behavior.

DR. MAY R. MAYERS, Chief of the Medical Unit, Division of Industrial Hygiene and Safety Standards of the New York State Department of Labor, gave a comprehensive review in her paper "Occupational Disease Diagnosis." She stressed the fact that when a worker gets sick, he usually first consults his own physician, and so the practicing physician is really in the front line when it comes to the need to recognize an occupational disease, clinically, and to make a correct diagnosis. Many occupational diseases are indistinguishable, clinically, from similar diseases which are non-occupational in origin. Only the etiology is different, but its recognition may provide the only opportunity for saving the patient's life. DR. MAYERS concisely presented the clinical picture of exposure to common toxic materials, such as benzol, beta naphthylamine, nitrous fumes, carbon tetrachloride, carbon monoxide and lead. She also dealt with the problem of dust exposure and silicosis. In the diagnosis of these conditions she stressed that an investigation of the occupational history of the patient is indispensable, but to be of real value, the occupational history must be carried beyond the patient's present job.

Program

Wednesday, May 14

JOINT MEETING with Section on Preventive Medicine and Public Health:

The Place of Multiphasic Screening in the Chronic Disease Program:

I. JAY BRIGHTMAN, M.D., Albany, Associate Director, Division of Medical Services, Department of Health, State of New York; Instructor in Preventive Medicine, Albany Medical College.

MORTON L. LEVIN, M.D., Albany, Assistant Commissioner for Medical Services, Department of Health, New York State; Associate Professor, Preventive Medicine, Albany Medical College.

The Cost and Evaluation of Multiple Screening Procedures:

VLADO A. GETTING, M.D., Boston, Commissioner of Public Health, Commonwealth of Massachusetts; Clinical Professor, Public Health Practice, Harvard School of Public Health.

Inherent Inadequacies of Multiphasic Screening:

WILSON G. SMILLIE, M.D., New York City, Professor of Public Health and Preventive Medicine, Cornell University Medical College.

The Value and Limitations of Screening Techniques in Industrial Hygiene:

DAVID W. FASSETT, M.D., Rochester, Director, Laboratory of Industrial Hygiene, Eastman Kodak Company; Associate in Medicine, University of Rochester School of Medicine and Dentistry.

JAMES H. STERNER, M.D., Rochester, Medical Director, Eastman Kodak Company; Associate Professor of Medicine, University of Rochester School of Medicine and Dentistry.

Thursday, May 15

INDUSTRIAL *Accident and Occupational Disease Prevention:*

NIEL E. ECKELBERRY, M.D., New York, Medical Director, Consolidated Edison Company; Associate in Industrial Medicine, New York Medical College, Flower and Fifth Avenue Hospitals.

Emotional Factors in Safety Education:

IRVING R. TABERSHAW, M.D., New York, Associate Professor of Industrial Hygiene, School of Public Health of Columbia University.

Occupational Disease Diagnosis:

MAY R. MAYERS, M.D., New York, Chief, Medical Unit, Division of Industrial Hygiene and Safety Standards, Department of Labor, State of New York.

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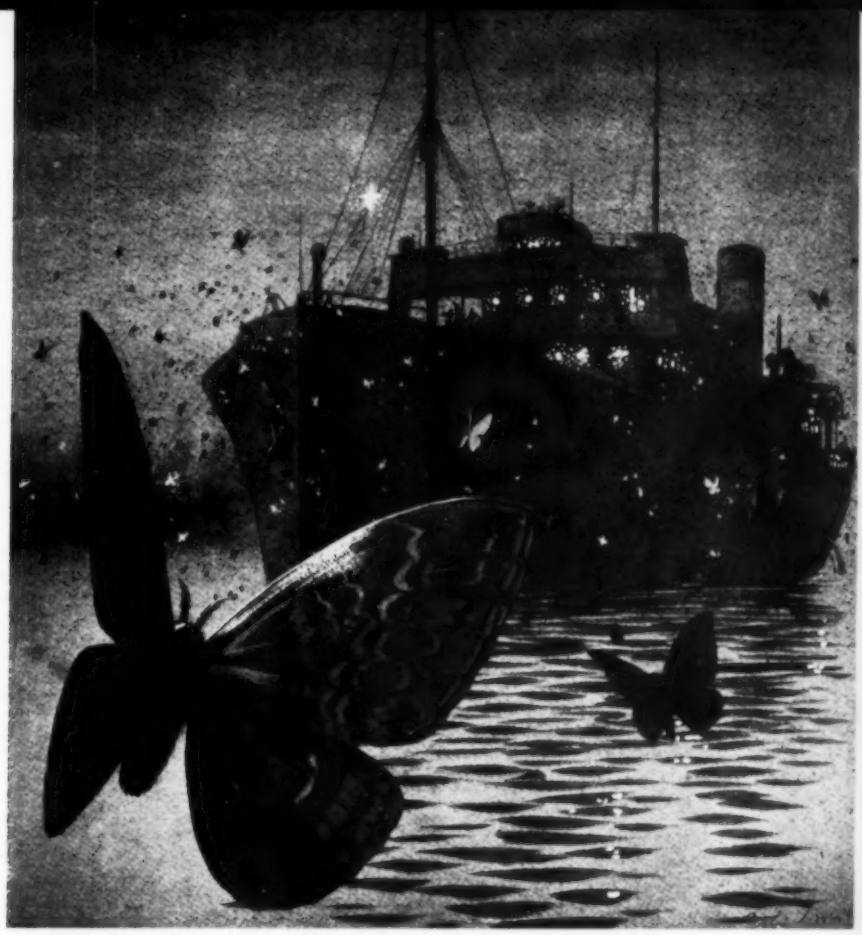

Beware! Butterflies

A Weird Enemy Ambushes Tankers at Maturin Bar

THE classic perils of the deep include wind, wave and the uncharted reef. A voyage of the *R. G. Stewart*, made some years ago, was responsible for adding a footnote: "Also butterflies."

The *Stewart* was a 14,560-ton tanker in the service of a Jersey Standard affiliate. She loaded one day, as she often had before, a cargo of petroleum at Caripito, in the eastern Venezuelan oil fields. Then she steamed peaceably down the winding, jungle-shrouded San Juan River toward the Gulf of Paria, some 60 miles away. Where the San Juan empties into the Gulf there was an underwater barrier of river-borne silt called Maturin Bar. All but very shallow-draft vessels required high water to cross it. At the time the *Stewart* approached the bar, the tide was low and still ebbing. So, in early afternoon, the *Stewart* dropped anchor and lay until almost 9:00 that night swinging gently in the river current, waiting for her tide. It was a peaceful evening. Her crew of nearly 40, stripped to the waist in the damp tropical heat, went about their work listlessly. Those off duty lounged in their bunks or hopefully sought a breeze on deck.

At dusk, the ship's lights attracted the usual busy swarms of insects. This night, though, the bridge and deck watches began to note strangers in the boarding party—large, unfamiliar brownish-yellow moths or butterflies. Even as they looked, more and more appeared, materializing soundlessly from the darkness into the dim pools of light about the *Stewart's* deck. When the ship weighed anchor, moths enveloped her like a living cloud, beating with blind, soft insistence against everything they touched. Veterans among the *Stewart's* crew, as they swept the creatures away from their faces,

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New occupational diseases are where you find them. This startling account was first published in *The Lamp*, a publication of the Standard Oil Company (New Jersey), June, 1952. There it was presented not as the disclosure of an occupational disease new at least to the United States, but as a ship log record of a troublesome adventure in the annals of worldwide trade. Here with permission it is republished as a scientific record—an addition to that long list of physiologic affronts that beset workmen as they fulfill their endlessly varied duties.

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conceded eloquently that they had seen a lot of tropical wild life but nothing quite like this.

Early the next morning, the *Stewart* stopped briefly at Guiria, the port of entry for Caripito, to drop her pilot and get clearance. Then she departed for Aruba, in the Netherlands West Indies, the incident of the butterflies already half forgotten.

During the day, however, the first cases of a mysterious skin irritation appeared—a disturbing thing aboard a ship kept, tanker-fashion, clean and healthy. Gradually, first mildly irritating, then downright annoying, finally tormenting, sometimes spreading over a man's entire body, it set half the crew to scratching madly, prevented sleep and yielded to none of the obvious treatments. The skin of the afflicted men became decorated with an unfamiliar tattoo of red welts.

AT ARUBA the master sought medical advice, and was given skin lotions which were promptly applied. The *Stewart* sailed, as scheduled, for Boston. But the itch did not diminish. In fact, it was plain to the captain, each time he inspected his unhappy crew, that fewer and fewer men could either sit or stand with tranquility.

Four days out of Aruba he radioed to New York: STEWART ENTIRE CREW SUFFERING FROM BAD SKIN IRRITATION NO SICKNESS ONLY FRANTIC ITCHING TRIED EVERYTHING MEDICINE CHEST NO RELIEF.

The master, while scratching along with everyone else, had been thinking too, and added: SUSPECTED SOURCE OF TROUBLE LARGE YELLOW MOTH.

On receipt of this message, Jersey Standard's medical department prepared for all contingencies. A company doctor went posthaste to Boston. He consulted with medical officials of the local Jersey affiliate and with the U.S. Public Health Service. He enlisted the services of an eminent skin specialist and of the Department of Tropical Medicine at Harvard Medical School. Thus a formidable battery of medical talent, fearing they knew not what, swarmed aboard the *Stewart* when she docked.

The doctors were relieved, though not nearly as much as the *Stewart's* crew, to find the outbreak subsiding. They examined crew and ship from stem to stern. A majority held that the men had scabies, a disease caused by mites (though no mites were located).

For the ship, they prescribed extensive fumigation and sterilization; for the men, among whom, it was noted, "tensions were quite high," reassurance that their affliction was more to be deplored than feared. The doctors expressed regret that some sorely tried individuals had resorted to doubtful skin lotions, such as turpentine.

But the company doctor disagreed with the diagnosis. For one thing, the *Stewart* was a clean ship, and mites do not flourish in sanitary surroundings. For another, ointments known to give relief from scabies had proved useless. Then, several crew members, pressed to recall details of the voyage, said that at Guiria they had lain alongside the *SS Pioneer*, whose crew, seeing moths on the *Stewart's* deck, cryptically prophesied that she was "in for trouble."

Even more convincing, however, were messages that had meantime been reaching New York.

The *Joseph Seep* had docked at Baton Rouge with a crew suffering from a baffling skin irritation. In the Gulf of Paria she had undergone a plague of moths so heavy that men on deck raked them off their bodies by the handful.

The master of the *L. J. Drake* sent a routine arrival report from Savannah, but added: ALL HANDS HAVE ITCH. This brought a prompt query from New York, whereupon he elaborated: CREW ALL ABLE TO WORK STOP EAT AND SCRATCH REGULAR STOP TEMPERATURES ALL NORMAL STOP BELIEVE ITCH WAS CAUSED BY MOTHS WHICH CAME ABOARD IN SAN JUAN RIVER.

The American Museum of Natural History identified the moths as belonging to the genus Hylesia; Harvard Medical School reported that they have finely barbed hairs, or spines, easily dislodged and capable of floating like dust in the air.

When a Harvard professor produced the characteristic irritation by rubbing some of this moth fuzz on his arm, the accumulated evidence was enough for Jersey Standard's marine and medical authorities. They advised tanker captains to darken ship, as far as possible, if forced to anchor near Maturin Bar after nightfall; to keep a sharp lookout; and, upon sighting moths, to issue sulfur ointment to all hands.

TWO years now passed without an overt act by Hylesia. Then they really lowered the boom, and this time the unhappy victim was the *W. C. Teagle*, which was temporarily assigned the job of steaming back and forth across Maturin Bar to scour a deeper channel in the mud. For nine days she pursued this monotonous duty, while her crew stared in boredom at the mangrove-lined shores. Then came a series of heavy rain squalls, followed by a dead calm, and out of a velvet night soared the raiders by thousands. The *Teagle*, unable to douse her lights while under way, was a helpless target. Moths inundated her, and the fuzz shaken from them as they beat against her drifted even below deck via ventilators and ports.

The itch (doctors call it moth dermatitis; to tankermen it is the butterfly itch) followed promptly and mercilessly. Four days later, the *Teagle* resigned the struggle and retreated upriver to Caripito, manned by a sleepless, scratching, angry crew. Five of the worst cases required brief treatment ashore. Then the *Teagle*, deemed exempt from further combat duty, was compassionately dispatched on a long ocean voyage.

The rout of the *Teagle* was the last full-scale attack by Hylesia on a Jersey tanker, although raids have been made in lesser force. Today, if the foe appears, crews are ordered into long-sleeved shirts, with the admonition that this temporary discomfort is infinitely preferable to the alternative. Finally, if the worst happens, casualties are enjoined not to scratch. This may well be the most unenforceable order ever issued on the high seas.

Admittedly, all these measures are defensive in character. The fact is, a more aggressive policy seems out of the question. For instance, the Museum of Natural History, asked how the plague might be controlled, suggested, "by locating the nests and destroying the caterpillars."

There is, further, the instructive experience of Irapa, a town on the Gulf of Paria, whose residents have been acquainted with Hylesia far longer than Standard Oil Company (New Jersey). When word comes to Irapa that the butterflies are abroad, the town fathers decree a total blackout.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS

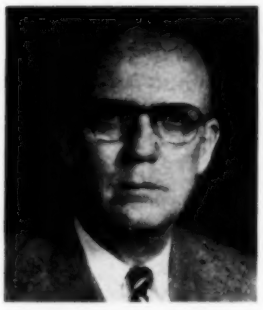
Officers 1952-53

HERE are the Officers and members of the Executive Board of the American Association of Railway Surgeons elected at the Sixty-Fourth Annual Meeting of the Association at Chicago, April 1-3, 1952, with their railway identifications. The Association's next Annual Meeting, the Sixty-Fifth, will be held at the Drake Hotel, Chicago, April 7-9, 1953.

A. J. O'BRIEN, M.D.
President
(Minneapolis, St. Paul & Sault Ste. Marie)

JOSEPH H. FRANCIS, M.D.
President-Elect
(Illinois Central)

C. F. HOLTON, M.D.
Vice-President
(Central of Georgia)



JAMES A. COWAN, JR., M.D.
Vice-President
(Pennsylvania)

F. D. GILLIS, SR., M.D.
Vice-President
(Chicago, Milwaukee, St. Paul & Pacific)

JAMES K. STACK, M.D.
Recorder
(Chicago & North Western)

CHESTER C. GUY, M.D.
Secretary
(Illinois Central)

THEODORE L. HANSEN, M.D.
Treasurer
(Chicago, Rock Island & Pacific)

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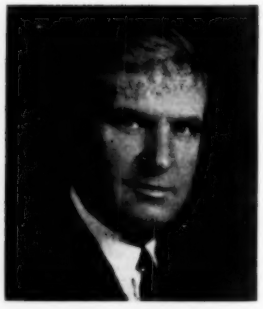
AMERICAN ASSOCIATION OF RAILWAY SURGEONS

Executive Board

ROBERT M. GRAHAM, M.D.
(Pullman Company)

ALEXANDER M. W. HURSH, M.D.
(Pennsylvania)

RAYMOND B. KEPNER, M.D.
(Chicago, Burlington & Quincy)



ARTHUR R. METZ, M.D.
(Chicago, Milwaukee, St. Paul & Pacific)

E. C. OLSON, M.D.
(Illinois Central)

RAY S. WESTLINE, M.D.
(Chicago & Eastern Illinois)

Saranac Symposium

THE SEVENTH Saranac Symposium, September 22-26, 1952, at Saranac Lake, New York, offers an interesting program. Monday's sessions include a morning panel on "Definitions and Clarification of Terms Pertaining to Pneumoconiosis," and an afternoon study of "The Inhalation of Certain Industrial Substances." Tuesday will have two sessions on "Pneumoconiosis in Coal Miners." Wednesday's morning and afternoon meetings will study "Pneumoconiosis and Pulmonary Cancer." Thursday morning the subject will be "Clinical Aspects of Pneumoconiosis," and Thursday afternoon will be given over to "Workmen's Compensation—Medical and Legal Aspects." On Friday there will be a presentation of "Viewpoints on Compensation for Pulmonary and Other Occupational Diseases" in the morning, and a panel on "Administration of Workmen's Compensation Laws as They Relate to the Pneumoconioses," in the afternoon. The 52 participants in the program include authorities on their subjects from 14 states, together with five from Canada, two from England, one from the British West Indies, and one from the Rand Mines, Johannesberg, Union of South Africa. At the Banquet Thursday evening, September 25, ANTHONY J. LANZA, M.D., will deliver the "Leroy U. Gardner Memorial Lecture." The moving spirit in this important assembly is ARTHUR J. VORWALD, M.D., Director, The Trudeau Foundation and the Saranac Laboratory.

His Known Abilities

QUESTION: "If one of my business associates were to ask me why I employed a man with one arm instead of a man with two, how would I answer?" *Answer:* "I assume that the man with one arm was satisfactorily performing his work or you would not have hired him, and he would not have remained on his job. If that is so, then the best answer would be to indicate that he is doing a day's work for his day's pay in free and open competition with everyone else in your plant. He was hired on the basis of his *known* abilities which are sufficient for the physical demands of the job he is performing."

—From "Industry's Man Power Resources," by HENRY VISCARDI, JR., in *Loss Control Magazine.*

INDUSTRIAL MEDICAL ASSOCIATION

The President's Page

FOR YEARS there has been criticism by some members of the Industrial Medical Association in regard to the way the officers and directors were nominated and elected. As a result of this criticism, the procedure was carefully studied at the time of the revision of the By-Laws, and a need for a change was recognized. Following lengthy discussion with the Board of Directors, and the officers, the committee made recommendations which were incorporated in the complete revision of the By-Laws on April 26, 1951. The committee thought it advisable to have a Nominating Committee, which would give representation to the component groups as well as the members at large; and, as a result of this recommendation, Article VIII establishes a new procedure for nominating and electing officers and directors. This provides for the appointment of a Nominating Committee consisting of three Fellows from the membership at large and three Presidents of component societies, thus assuring adequate representation from the component groups as well as direct members. These measures should insure a reasonably good distribution of the committee and should prevent the Association from being dominated by any one group of physicians.

The By-Laws provide that the Nominating Committee shall propose not less than two Fellows for each vacancy on the Board of Directors —six directorships to be for a term of two years—and shall also make nominations for any unexpired terms which may need to be filled. The committee is charged with the responsibility of reviewing the roster of Fellows of the Association for potential nominees. The committee also solicits recommendations from the membership. This task is not as simple as it may seem, because the committee attempts to recommend the best qualified men and must abide by the By-Law provision that only Fellows are eligible to office. Geographical distribution is considered, as well as distribution in the various component groups. In addition to the abilities which the nominee may possess, the committee must also consider the individual's desire and willingness to put forth some effort in the interest of the Association. The nominations are furnished to the Managing Director at least four weeks prior to the Annual Meeting of the members. This year we hope to have these nominations early enough to permit publication in *Industrial Medicine and Surgery* prior to the meeting.

The By-Laws require the Board of Directors to nominate Fellows for the offices of President-Elect, First Vice-President, Second Vice-President, Secretary, and Treasurer. The By-Laws Committee advised this provision because they thought the Board of Directors should be in a position to know which individuals are qualified by experience and knowledge of the Association activities. The Board members should also be in a position to know who is willing to expend time and effort in the interest of the Association. Past experience has shown that by the time an individual has served on committees and on the Board of Directors he has demonstrated quite clearly how much effort he will put forth for the Association. I believe time will prove this to be a wise procedure.

The By-Laws further provide that, in addition to the nominations by the Nominating Committee and the Board of Directors, any member eligible to vote shall have the right to make a nomination for any office from the floor. According to Article III, Section 8, Associate, Honorary, Inactive, and Retired members shall have all the privileges of Active members, except the privileges of holding office or voting. Eligibility to vote is thereby limited to Fellows and Active members.

The By-Laws also provide that the Managing Director shall be appointed by the Board of Directors. This is a sound business practice. The officers and directors should be in the best position to evaluate the duties and responsibilities of the Managing Director.

The election of officers and directors is part of the business at the Annual Meeting of the Association. All members should bring their paid-up membership cards to the meeting. The card serves as identification of the member and will qualify him for the election. Those members eligible to vote will be given a ballot at the start of the meeting. We hope to have the procedure improved at the next meeting so that there will be a minimum of delay and confusion.

Be sure to attend the Annual Meeting and to exercise *your* privilege of voting. It is *your* Association, and you should take the time and interest to aid in the selection of the men who will guide its future activities.

E. A. Irvin, M.D.

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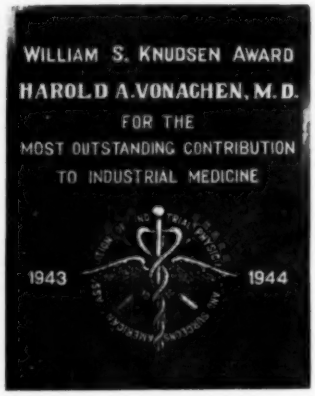
INDUSTRIAL MEDICAL ASSOCIATION

The History of the Knudsen Award

THE HIGHEST honor that may be bestowed by the Industrial Medical Association on any one of its members is the William S. Knudsen Award. Every year as a feature of the Annual Conference, announcement is made of the Knudsen Award for that year. This Award is now in its fifteenth year, the first having been presented in Cleveland in 1939 and the last in Cincinnati in 1952. No Award was made in 1945, that being the war year during which all national assemblies were discouraged by the Federal government.



The Knudsen Award was established in 1939 by Mr. William S. Knudsen, then the President of General Motors Corporation, later Lieutenant General Knudsen of the United States armies, which service was followed by Mr. Knudsen's death in 1948, at the age of 69. After Mr. Knudsen entered military service during the period of the nation's last major war responsibility for the Award was assumed by Industrial Medical Association which perpetuates this mark of honor in memory of William S. Knudsen as a far-seeing industrialist and outstanding sponsor of the merits of industrial medicine.

At the time of the inauguration of the Knudsen Award, Dr. Clarence D. Selby was President of Industrial Medical Association, then known as the American Association of Industrial Physicians and Surgeons. Well it may be believed that Mr. Knudsen's admiration for Dr. Selby prompted the creation of this award. The first presentation was made by Mr. Knudsen himself at the banquet of the Association in Cleveland in 1939. The address there made in some measure was a charter of industrial medicine. Mr. Knudsen, while advocating in firm fashion the maintenance of sound industrial medical programs, was a constant believer that such activities distinctly were functions of management, subject to every good influence but subject to no other control than management.

THE first Knudsen Award was made on a competitive basis. Early it was believed that this form of competition would spur many physicians to outstanding scientific endeavors. All members of the Association were invited to compete for the Award. To make the first year of the Award's life outstanding, a few members were importuned to submit records of scientific work for the Award Committee's consideration. The writer of this history, by invitation, submitted a small book covering his investigation of leishmaniasis as an occupational disease as it occurred in Central America. The committee, after due appraisal, designated Dr. C. O. Sappington on account of his then new book publication, "Medicolegal Phases of Occupational Diseases."

Early it became apparent that the more notable members of the Association would not engage in competition for any award. Dr. R. R. Sayers stated, "Let honors seek the man. Let no man seek honors." Ever afterwards the yearly Award has been made in response to the recommendation of a special committee charged with that obligation. In some early years, all preceding recipients constituted the awarding committee. As the number increased, year by year, that practice was deemed unwieldy and was discontinued.

Perhaps fortunately no rigid rules have been created covering the selection of the Knudsen Award recipient. Every committee has served as a law unto itself. In the early days, the practice was to designate that outstanding individual who during the Association's fiscal year made the foremost contribution. Later it became apparent that several individuals fully deserving recognition had made their contributions over a period of years. Consequently, adequate consideration has been extended to that situation.

Physically, the Award consists of a bronze plaque suitable for office display. This plaque displays the name of the Award, its recipient, the year of bestowal, and the Seal of the Association.

A LIST is now furnished naming the recipients year by year, and in some instances the specific contribution leading to the Award. In other instances, and properly so, no one activity is mentioned, but the record of presentation fully discloses endless contributions over long periods of years. This list is now shown:

1939, Cleveland: DR. CLARENCE O. SAPPINGTON —Book publication: "Medicolegal Phases of Occupational Diseases."

1940, New York: DR. LEROY U. GARDNER—Investigation of silicosis and other dusty lung diseases.

1941, Pittsburgh: DR. ROYD R. SAYERS—For any of many contributions made but specifically the

Award presentation emphasized studies in absenteeism.

1942, Cincinnati: DR. CLARENCE D. SELBY—A leader in the progress of industrial medicine but at that time notable for contributions related to industrial medicine in national defense.

1943, Rochester: DR. WILLIAM A. SAWYER—For outstanding contributions to programs of nutrition in industry, programs of rehabilitation, and studies of the aging process in industrial workers.

1944, St. Louis: DR. HAROLD A. VONACHEN—For notable studies on human relations in industry.

1945, No Award during this war year.

1946, Chicago: DR. ANTHONY J. LANZA—For leadership in the development of industrial medicine in the United States and the world.

1947, Buffalo: DR. CAREY P. McCORD—For a public relations book designed for the laity, "A Blind Hog's Acorns."

1948, Boston: DR. T. LYLE HAZLETT—For celebrated endeavors in the promotion of formal education in industrial medicine.

1949, Detroit: DR. ROBERT A. KEHOE—For meritorious laboratory and clinical investigations of lead intoxication.

1950, Chicago: DR. EDWARD C. HOLMBLAD—For praiseworthy advancements in the organization of industrial medicine on a national and international basis.

1951, Atlantic City: DR. ROBERT T. LEGGE—For being industrial medicine's renowned statesman, historian and ambassador.

1952, Cincinnati: DR. MAX BURNELL—For the promotion of better formal education in industrial medicine.

NOT every member of the Industrial Medical Association will ever become the recipient of the Knudsen Award, but every member may strive to attain that honor. The record of those already honored should provide stimulation and incentive to activities in the laboratory, in the clinic, in the studyroom, all of which in the years to come, for a selected small number will lead to this coveted Knudsen Award.

OVERSEAS

Newsletter from Australia

"Free" Medicine

NOT HAVING much contact with the private side of clinical practice I readily obtained from the local Secretary of the British Medical Association (Queensland Branch) some semi-official impressions of the working of the various schemes during the last year.

There seems to be universal agreement by both doctor and patient that the free "life-saving drugs" scheme has conferred a really worth-while benefit on the sick in the community. As mentioned in an earlier letter this means that any medical practitioner writes a script in duplicate for drugs which are really of specific benefit. These are on a list and consist of morphia, hormones, sulpha drugs, antibiotics, etc. The patient presents the script to the pharmacist and receives the drugs free of charge. There is the minimum of "paper work" for the doctor but pharmacists whom I know, however, "winge" a little for they have to apply for the refund from the government. The cost in the first year of operation was 3¼ million pounds, or approximately a little under a dollar a head of population. It is anticipated, however, that as more costly drugs—cortisone, etc.—become readily available this cost will rise somewhat.

About the "pensioner medical scheme"—the second step in the provision of a Health Service—feelings are more varied. Most pensioners, principally old aged and invalid pensioners, are entitled to three benefits: (a) Free life-saving drugs—as is everyone else. (b) Free medicines from a formulary drawn up by a committee of medical men. (These are everyday mixtures and correspond roughly to the drugs dispensed by most public hospitals.) (c) Free consultation, including visits to the home, with any medical practitioner who through the British Medical Association notifies the government that he is available for this service. After the service has been rendered, the patient or his deputy signs a voucher setting out the type of service and the doctor in turn submits this to the government for payment. The fees paid are concessional and subject to variation, the basis of which is still under negotiation. Specialist services are not included in the scheme—for these the pensioner would have to attend a public hospital. Pensioners are said to be happy, but the doctors probably as a whole are not so enthusiastic. The service takes up time, as does the necessary "form-filling" involved. The "concessional fee" also comes in for criticism especially since the basis for its variation has not yet been worked out, while the current inflation sees to it that the doctor's own costs are steadily rising notwithstanding.

My only personal contact with the scheme has been an indirect one. When the "pensioner scheme" was first introduced I thought it fitting that I should give the various old souls who regularly attended my medical out-patient desk in this city's public hospital a chance to change to their local medical practitioner. I was astonished at the number of old people who (a) were not "old age" pensioners; or (b) if they were, declined to leave the public hospital for the relative comfort of treatment in their own suburbs. I agree, however, with the cynics who do not regard this as an indication of love of public hospital medicine but rather as an example of the gregarious instincts of lonely old people who like to spend an afternoon chatting with their fellows in "Outs" while waiting to see the doctor.

Industrial Medicine

THE ERA of atomic energy is bringing in its train even in this neck of the woods a certain amount of soul searching and cogitation by industrial hygienists as to whether the time has come to recommend legislation for the control of radioactive substances and apparatus. Hitherto all parties have

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rubbed along reasonably safely because for the most part radiotherapists and diagnostic radiologists and their staffs have been mainly concerned; the few industrial radiology plants have been in competent and prudent hands, and screens in shoe stores have been recently brought under some supervision by a kind of "gentleman's agreement." With, however, some of the more venturesome industrialists talking of importing isotopes for industrial application, most feel that unless controlled, dangerous materials could be placed in the hands of the ignorant, the careless and feckless. Whether, however, the isotope age is going to prove as useful to industry as at first alleged is quite a different matter.

Another matter which is causing some concern is the increasing use of the newer insecticides and pesticides—the "parathion" group, di-nitro-ortho-cresol and, to a less extent, the chlorphenates. The latter are having a widespread use in this state as fungicides on softwoods in the timber trade and rather unexpectedly as weedicides in the pineapple industry. By spraying solutions on weed-free ground, fresh weed growth is killed off as it pushes through the surface of the soil.

The Division of Industrial Hygiene (New South Wales)—the late Charles Badham's stamping ground—has during the year shifted from the old cramped quarters in Macquarie Street, Sidney, to a remodelled building in George Street North. During the remodelling for all practical purposes only the external walls and floors were left intact, and the offices, labs, etc., were built to the design of the present Director, Dr. J. C. Cummins. Apart from being an efficiently designed unit, there are a view out over the harbour, pastel-shaded walls, etc.—and the end result is an Industrial Hygienist's dream. It has an air of beauty and the open spaces usually sadly lacking in the lairs where industrial medical men are wont to lurk.

Of Droughts and Food

OVER the more populous Eastern states of Australia, 1951 came in with floods and went out in clouds of dust from drought, haze of smoke from bush fires and the stench of animal carcases rotting on the sun-baked plains. The all embracing drought—one of the worst for a half century—in a land fairly inured to periodic lack of rain has brought to a head a problem of some medical interest—food, or perhaps rather the manner in which food intake habits differ from country to country. In a land whose export wealth comes mainly from primary production food prices have tended to be low in comparison with wages, and in consequence the Australian standard of eating in such things as meat, butter and eggs has always been a high one. It has come therefore as a shock to the average city dweller to realize that the drought has simply highlighted a trend already apparent—a trend which has been caused by postwar immigration from Europe mostly to Australian cities—and a veritable current rather than a drift from the loneliness and hardship of Australian rural living to the amenities of urban life. In a land which has always had a surplus of primary products it is now loudly proclaimed that there is a "shortage of food." Fortunately by no stretch of imagination could it be considered that there is insufficient food to supply the nutritional needs of the people. It simply means that Australians will be eating a little less of the more desirable and more expensive foods. Considering that we eat twice as much meat per head as the average citizen of the United States and three or four times as much as a dweller in Britain, we can probably afford to eat a little more carbohydrate and a little less protein and fat. Such assurance based on the science of nutrition, however, leaves the average Australian "cold." An elderly member of my household expects a generous helping of meat at every meal of the week and when occasionally it is not forthcoming manages to convey the impression that he is already suffering the poverty of a Home for the Aged. When at length the woman of the house in exasperation pointed out some facts about the meat intake of the Chinese, Indians, British and sundry associated nations he invoked the Diety and exclaimed that no man could do hard work unless he had "three square feeds" of meat a day. At all events the alleged "food shortage" will provoke no great medical or scientific problems. Meanwhile politicians of all parties study as yet without result the conundrum of how to persuade the farmers "to keep on farming" without unduly raising the price of their products or, as the farmers allege, how to persuade the farmer to keep on being "the sucker."

—DOUGLAS GORDON
Brisbane, Australia

BOOKS

Films and Slides

OCCUPATIONAL HEALTH AND RELATED MOTION PICTURES, FILM STRIPS AND SLIDES. Federal Security Agency, Public Health Service, Division of Occupational Health, Washington, D.C., 1952, pp 24, Free.

ONE of the handicaps to occupational medicine, and particularly so in regard to educational programs, is the dearth of suitable motion pictures, film strips and such. A better statement would be that not only is there a dearth but little is known as to the location and availability of the few that exist. Helpfully, the Public Health Service, through its Division of Occupational Health, has listed all available information about occupational health motion pictures, film strips and slides. This publication is as current as June, 1952. It is hoped that hereafter, at six-month intervals and certainly no longer than one year, supplements may be provided. While no omissions are known, undoubtedly others exist and are unregistered. If other films are possessed, here and now, see they get on the list. Communicate with DR. SEWARD E. MILLER, Medical Director, Chief, Division of Occupational Health, Public Health Service in Washington.

Opportunities

CAREERS FOR NURSES: DOROTHY DEMING, R.N. McGraw-Hill Book Company, New York, 1952, pp 322, $4.50.

THIS is a recruiting book for student nurses, and a good one. The honest lures provided should lead to an endless flow of joyous young women gaily

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seeking the adventures of a life in some of the many forms of nursing. This, in case the book reaches that flock of charming demoiselles whose goes not yet are pointed in any fixed direction. This book deserves just that reach.

The expectancy was that no text designed for nurse recruitment would fail to present nursing in industry as one opportunity. That expectancy is well fulfilled in a chapter by Margaret S. Hargreaves, one of many contributors. The job description is sprightly, neither exaggerating nor belittling the nurse's part in the industrial medical program. Admitted prejudice leads to the finger pointed at industrial nursing. But, at least 17 other specialized forms of nursing are fittingly described. The choice is wide; the opportunities endless.

Traditionally, the nurse lends her capabilities toward the healing of the sick. Partly that is an emotional appeal—if so, all to the good. Still, no small part of nursing opportunities lies in the maintenance of the health of those now well. If that be the call to the prospective nurse, then let it be disclosed that industrial nursing in a degree well to be emphasized, is just that—keeping the industrial worker on the job and contented. Not every industrial physician may realize it, but his nurses are indispensable to a successful medical program—his distaff partners. The shortage of such key personnel is appalling.

Taste and Smell

THE CHEMICAL SENSES: R. W. MONCRIEFF, B.SC., F.R.I.C., F.T.I. John Wiley & Sons, Inc., New York, 1946, pp. 424, $4.50.

THIS book was published in 1946. What of it? It still is one of the remarkable books of the decade—or any decade. It serves as a constant reminder of man's scientific inadequacy—let's face it, his ignorance about some things. Far removed is any hinting that the author is ignorant. He deals eruditely and practically with the mysteries of taste and smell, with emphasis on smell. These he labels as the "chemical senses," but the prospect is that the ultimate ravelling of these dark scientific areas will accentuate physics. All that is but the matter of definition. So soon as any scientific problem may be defined, no longer is it a problem. Certainly, few precise definitions may be attached to odors. All that is known about taste and odors appears in this book with such readability that it might well capture the cheering of the Ladies' Monday Literary Club, no less that the physiological seminar. Since 1946, two newer contributions on odors have developed, being the work of MCCORD and WITHERIDGE, and that of MILES and BECK. The latter was hailed as the outstanding scientific discovery of its year. The ensuing comparative silence perhaps reflects lack of any simplicity in explaining how mankind's olfactory organ, capable of registering unlimited thousands of odor stimuli, accomplishes that end. There are some 25 theories as to the mechanism of odor detection. Possibly none is valid. In the meantime the nose unperturbedly goes about its endless business of odor detection, possibly enjoying the consternation that its mysteries provoke in scientists. Well does the nose hide its secrets.

The value of this book is not confined to its assemblage of all that is known and much that is conjectured about odors and taste. Its occult pricelessness resides in its answer to those repiners who see no worlds left to conquor. Let them get busy bringing understanding for the chemical senses. The widest unexplored frontiers lie under hatbands.

Inner Powers

THE KNACK OF USING YOUR SUBCONSCIOUS MIND: JOHN K. WILLIAMS. The Updegraff Press, Ltd., Scarsdale, New York, pp. 104, $2.50.

ROUND about most of us always are a few persons that mysteriously refer to their "inner powers," "vibrations," "in tune with the infinite," etc. An inclination arises to suggest to some member of the family that possibly a visit to a good psychiatrist is in order. The truth is that most contentions are valid. Only the terminology is shocking. Such persons are not necessarily in tune with the infinite but, instead, are attuned to their own secondary brain—the subconscious mind. This book, in promoting itself, states:

"The author makes no claim to originality or technical training, and no pretense to being scientific. His aim is, rather, to sketch briefly the workings of the mind in relation to an individual's personality and progress, and then to present the methods and experiences of people in all walks of life who have mastered the art of using the little-understood subconscious area of the mind. It is a book for the man or woman in business or any of the professions, for the research scientist, the creative worker, the craftsman, the teacher, the student, the wife and mother. Its principles are universal in their application to everyday life and work. They can be used to solve the most perplexing problems, and to save a vast amount of time. Often they draw upon unsuspected creative facilities."

Part of the value of this book springs from the fact that this is the summation of a layman, that is, a layman to medicine. It is shorn of all the intricate jargon of the psychologist, psychiatrist, or psychoanalyst. The author, honestly denying all professional capacity, properly limits himself to the normal mind. Since he does not define the normal mind, nor perhaps could anyone do so, he clothes himself with a lot of safeguards forestalling professional criticism. Within this limitation, with propriety, he veers away from any representation or, perhaps, recognition that the subconscious mind can be an enemy as well as a friend—a trouble-maker as well as a servant. The warped subconscious contains as many evils as Pandora's box.

Understandably the endless examples appearing in the text run to the miraculous, the extraordinary. All such are engaging, but the helpful fact is that daily in a hundred ways the subconscious mind lends itself or could lend itself to usefulness. Many tens of thousands of persons nightly wind no alarm clock, but set the subconscious mind to awaken them at a pre-determined hour. The human mind will do just that if encouraged and trusted. This is not miraculous! Yes, maybe it is, for by just what process does the subconscious mind become a clock? Even animals know time. Cats come to learn that on Thursday the meat man arrives and they wait for him. Dogs know the hour that school will adjourn and trot off to meet the children.

The human subconscious mind is not born with a Ph.D. degree. Somewhat its services may be instinctive but, by and large, the subconscious mind,

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like the conscious one, requires training, disciplining, and experience. It may be well to remember what Montaigne said in 1588: "Dreams are the true interpreters of our inclinations; but there is art required to sort and understand them."

Insecticides

THE CHEMISTRY AND ACTION OF INSECTICIDES: HAROLD H. SHEPARD. First Edition, McGraw-Hill Book Company, Inc., New York, pp. 504.

AT FIRST blush (whatever that figure of speech may mean), the desirability that the plant physician delve into the intricacies of new and old insecticides, is not apparent. On second blush, four items stand out to contradict the statement just made: (1) The manufacture and application of insecticides distinctly are occupational pursuits. (2) On large or small scale, insecticides are applied in every plant. (3) Many industrial workers engage in off-hour farming or gardening and make use of varied insecticides. Here and there these workers, having incurred damage from insecticides, will present themselves in the Medical Department attributing all manner of affections to their regular work and, of course, describing the exact circumstances of regular work that produced their ills. (4) Some of the newer insecticides are proving to be just about the most toxic agents to which workers are subject anywhere. Thus, willy-nilly, the industrial physician must qualify in a somewhat new and rapidly changing field.

The author in his own words summarizes the purposes and contents of this book: "Insecticides are the materials utilized in chemical control of insects. It is with the properties of these insecticides, not with the details of insect control, that this book is primarily concerned, although specific pests may be named in connection with the chief uses of each material or mentioned as laboratory animals used to determine relative toxicity or mode of action. It is the purpose of the author to present the more essential facts and theories relating to insecticides, including not only chemical, physical, and toxicological aspects but also historical and commercial information. Fungicides, rodenticides, and other economic poisons are frequently mentioned and described because of their chemical and toxicological relationship to insecticides and their reactions in mixtures with insecticides or when applied to the same objects.

"A demand for more and better insecticides has developed rapidly in recent years, resulting in widespread interest and vigorous research in this field. After many years of seeking for multi-purpose materials, it is being realized that particular insecticides and formulations often must be developed for specific types of pests. Other reasons for this growing demand are the convenience of applying custom-made formulations prepared on a large scale, the swelling of profits because of foodstuffs saved from insect consumption, and the intensive publicity given to insecticides and repellents developed for use in the Second World War.

"Consumption of insecticides is dependent upon the incidence of insect pests and the damage they cause. Annual losses in the United States due to the work of insects are estimated to be as much as $4,000,000,000. Similar losses from plant diseases are reported. Living plant crops suffer the heaviest losses from insects, so here is found the largest use of insecticides. Large quantities of chemicals are applied also in public sanitation, in the protection of stored materials, especially foods, and to control insect pests of domestic animals."

The pessimist long has predicted that insects in time will take over the earth. They are doing a pretty fair job right now. Right now too, it is becoming clear, man not only has to fight insects but also fight the insecticides that fight the insects!

LETTERS

TO THE EDITOR: Please allow me to comment on the editorial on page 362 of the July, 1952, issue of *Industrial Medicine and Surgery*, entitled "Johns-Manville Provides a New Day." The Johns-Manville Company is certainly to be commended for its excellent attitude in warning users as to the potential hazards involved in the handling of its "Celite." I have only praise for the company's action, but I feel that some further information in reference to precautionary labeling would not be amiss. This editorial implies that heretofore the Federal regulations under the Interstate Commerce Commission provided about the only protection in the way of precautionary labeling, and that "in some quarters" it is calculated practice to conceal the presence of potentially harmful properties. Such concealment is certainly not common practice, and would be found to apply only to a very small percentage of distributors, mostly of mixtures for special purposes. Certainly it does not apply to manufacturers of most chemical products.

I would like to call attention to the activities of the Manufacturing Chemists Association in this field. The Association, founded in 1872, has a membership now of 124 companies, including practically all of the major manufacturers of chemicals in this country, and who produce more than 90% in tonnage of the chemical products of the United States. For the past 20 years it has actively participated in the development of precautionary labels. With the growing importance of such labeling incident to the enormous increase in available chemical products, the Association set up in 1944 a permanent "Labels and Precautionary Information Committee." This committee established principles and developed a pattern for the Preparation of warning labels, published in "Warning Labels, Manual L-1."

It may be of interest to note that a number of states and the U. S. Public Health Service, accept as satisfactory, labels written in accordance with the principles set forth in this Manual L-1 of the Manufacturing Chemists Association. Members of the Labels and Precautionary Information Committee have also actively cooperated with various agencies concerned in the preparation of labels, such as the Department of Agriculture, Food and Drug Administration, Interstate Commerce Commission, various state agencies, and others.

Precautionary labeling is here to stay. It has been accepted voluntarily by all the major chemical manufacturers. There is steady progress toward more general use of precautionary labels on potentially hazardous materials. For many years a prime mover in this, especially as to adequacy and uniformity, has been the Manufacturing Chemists Association, Inc.

—A. G. CRANCH, M.D.,
Medical Consultant.

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Chronic Carbon Monoxide Poisoning

ORIGINATING chiefly in European countries are a fair number of past and current publications captioned as is this editorial. These commonly raise no question of doubt as to the actuality of a chronic form of damage from carbon monoxide gas. Instead, in matter of fact manner, they go about the project of presenting cases and circumstances of exposure. The larger number report the establishment of carbon monoxide in the blood stream, thus fully clinching the diagnosis.

Anyone familiar with the laws and behavior of gases, including carbon monoxide, has become aware that that gas does not long remain in the blood or more solid tissues. The detection beyond traces in the blood over any prolonged period in itself constitutes proof of persistent or renewed exposure. Carbon monoxide is not cumulative within the body, forms no known retained chemical compounds with tissues, and, obeying the laws of gases, promptly eliminates itself wholly or chiefly in the orderly processes of respiration.

Wherein lie the difficulty and the confusion? Unequivocally, the devastating action of the gas may be recognized when carbon monoxide present in the body deprives the tissues of their essential oxygen requirements. Equally without reservation is the recognition that severe acute poisoning may eventuate in significant sequelae of organic origin, well varied as to severity, site, and persistence. Some sequellae may be permanent and entirely irreversible. All organic sequellae may be believed to spring from the anoxia created at the time of the acute episode, the damaging period of which may have continued well after the exposure. The dramatic and highly disturbing circumstances of the usual exposure culminating in the acute affair, together with emergency lay and medical first aid and medical care of carbon monoxide victims, are fruitfully conducive to the provocation of endless neuroses granted to be harrowing to the victim, lacking capacity to discern between the real and the functional, and equally harassing to the physician in his management of the situation. None of these conditions, however troublesome or continuing, constitutes chronic poisoning or justifies that term. Such diagnoses merely complicate medical terminology, records, compensation matters, court procedures. Such diagnoses undeniably appeal to the unthinking physician and are mighty satisfying to the layman's appraisal of continuing symptoms long after the gas exposure.

WHAT are the likely facts? Many of the so-called "chronic" carbon monoxide poisoning cases are the victims of "chronic" exposure, not "chronic" poisoning from a single exposure. Many thousands of persons continually, or continuously, or repeatedly, are exposed to carbon monoxide from heating appliances, or at work, or in connection with automobiles or similar vehicles or devices. The gas concentration is at low level, or the time of exposure is insufficient to initiate any fulminating episode. These exposure conditions, nearly always insidious, are well capable of inducing damage. Time becomes an essence even when concentrations appear negligible. Without any reluctance, the reality of damage as a possibility is emphasized. It may

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be conceived that percentages of blood saturation now accepted as the threshold of prospective mal-action must be lowered, since the refinements of research toxicology continually trend toward the determination of unsuspected damage from quantities of the intoxicant heretofore regarded as within a safe range. By all manifestations, these unfortunate patients do harbor a chronic state. Carbon monoxide, in readily measured levels, may be exhibited by the blood. In truth, carbon monoxide is the offender, but the occasion is one of continuing, persistent, chronic exposure, perhaps with some peaks of accentuated manifestations. This is not chronic carbon monoxide poisoning. This is chronic exposure.

In another sizable portion, those cases designated by their physician as "chronic" carbon monoxide poisoning represent the aftermath of devastating acute events. Quickly the body is destroyed in its parts by the lack of oxygen or serious partial deprivation of oxygen. A few moments only of anoxia may be sufficient for irremediable damage. Some tissues and organs are more vulnerable than others. The heart and the brain are notable. Sustained damage in terms of sequellae may be the lot of those damaged severely in crucial, acute affairs. This is not "chronic" carbon monoxide poisoning any more than a wound scar, clearly a sequela, is in itself a chronic wound.

An outstanding threat in carbon monoxide poisoning is to those already harboring some organic disease and particularly cardiovascular disease—even though such be unknown. A damaged circulatory system is highly vulnerable to further damage provoked by carbon monoxide. In this situation, for the first time the victim may disclose chronic disease—disabling or otherwise. This is not "chronic" carbon monoxide poisoning. Clearly it constitutes aggravation of pre-existing chronic disease.

For overt reasons, acute carbon monoxide poisoning promotes the appearance of neuroses. Roughly calculated, about half of compensation claimants alleging enduring damage after carbon monoxide exposure demonstrate functional disorders. These neuroses frequently stand in no relation to the extent of the real or alleged exposure. Such persons, as a rule, are not wilful malingerers. To them, their disorder is above question, disabling and painful. This group, when diagnosed "chronic" carbon monoxide poisoning, merely perpetuates a medical error. Neuroses do not warrant any such diagnosis, and present the usual features of divers neuroses from other causes.

There remains nothing to be termed "chronic" carbon monoxide poisoning. The frequency of acute poisoning is alarming, and fatalities are all too frequent. Persistence of disturbances often may not be challenged. But, among physicians yearning for exactness in diagnosis and scientific concept, this fallacy of "chronic" carbon monoxide poisoning should not be pursued unless future disclosures reveal justification for change. Neither physics, chemistry, nor physiology provides any comfort to those who espouse "chronic" carbon monoxide poisoning as a medical entity.

Public Relations

THE VALUE of education in the field of industrial health is apparently well recognized in the State of Michigan—as evidenced by two recent announcements.

THE Detroit Historical Commission, under the guidance of TERRENCE E. CARROLL, is in the planning stages of an extensive exhibit to be housed for a period of six months in Detroit's Historical Museum, opening about March 15, 1953. The exhibit, as finally assembled, will consist of approximately 20 individual displays on industrial health, with emphasis upon Michigan's industries and industrial health achievements. Among the industrial physicians cooperating in this planning are DRS. ALFRED H. WHITTAKER, E. A. IRVIN, MAX R. BURNELL, HARLEY L. KRIEGER, J. J. PRENDERGAST, CAREY P. McCORD, and LYNDLE R. MARTIN.

MICHIGAN Health Council, which long has promoted television programs for the better education of the people in the preservation of health, is currently centering the program about industrial health. The Industrial Medical Association, the Industrial Physicians' Club of Detroit, and the Institute of Industrial Health of the University of Michigan have lent support to the point of member participation in presentations. The first in an indefinite series was staged August 10, 1952, in a "Court of Health." Those appearing on the program were DR. E. A. IRVIN, President of I.M.A.; DR. CLIFFORD KEENE, Medical Director for Kaiser-Fraser Corporation; DR. W. A. DAWSON, Physician in Charge at the Rouge Plant of the Ford Motor Company; and RALPH G. SMITH, Chief Industrial Hygienist of the Bureau of Industrial Hygiene, City of Detroit. Future plans tentatively embrace programs and teams on industrial nursing, dust and dusty lung diseases, carbon monoxide poisoning, lead poisoning, noise, and newer methods of artificial respiration. The "Court of Health," which has many other presentations than those devoted to industrial health, may be viewed Sunday mornings at 10:30 on WJBK-TV.

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NEWS, COMMENT, OPINION

A WASHINGTON newsletter says that union leaders are preparing to demand "expanded health plans, with employers carrying the *full* cost."

New Dispensary

RCA VICTOR recently dedicated a new $50,000 dispensary for employees of its Camden plant and offices. The new dispensary is air-conditioned and has soundproof ceilings. It is open 18 hours each workday, with a plant physician and five nurses in attendance. Treatment is provided in cases where illness or injury is incurred by employees in the performance of their duties. In cases of illness or injury not incurred in the line of duty, the dispensary gives emergency treatment if required and then refers patients to their own physicians or to hospitals.

—*J.A.M.A.*, 149:16 (August 16) 1952.

Skill Reserve

PERHAPS the biggest reserve of technicians and professional skills existing today is in the over-65 age group—among those who have retired, but who would like to return to either full-time or part-time employment.

—*Business Week*, June 21, 1952.

No Health Damage

MORE than 1,100 workers in uranium mines and mills in Colorado, Utah, New Mexico, and Arizona have been given detailed physical examinations but no evidences of health damage from radioactivity have been revealed, according to a report by the Public Health Service of the Federal Security Agency. The examinations are part of a study of occupational health conditions in the uranium industry that has been under way since 1950.

—*J. Kentucky State Med. A.*, August, 1952.

Statistics

FERTILE area for labors of the public health statistician is industrial health. A number of public agencies are now concerned with this problem, while private industry is attempting to deal with it on a within-plant basis. The trend is toward integration of effort, both governmental and private, aimed at the total problem. The division between health problems which occur in the community is artificial. For example, industry has already discovered that absenteeism from non-occupational injuries and illness by far exceeds that associated with occupational. The statistician with a public health viewpoint can assist, first, in setting up record systems in industry and in government agencies which will be interlocking and, second, in analyzing and evaluating health problems which have a reflection in production manpower. This should mean not only better over-all community health, but dollars and cents to industry.

—From "Vistas in Public Health Statistics," by CLARENCE J. VELZ, M.S.P.H., in *Public Health Reports*, 67:8 (August) 1952.

Cost

THE Beveridge Report in 1942 estimated the cost of a national health service at £170,000,000; in 1952 it is £400,000,000, having been held down to this figure by the Treasury, with many of the demands on it left unsatisfied.

—From "The Cost of Health," Editorial in *New England J. Med.*, 247:5 (July 31) 1952.

Wisconsin Clinics

MORE than 500 physicians, nurses and plant managers turned out for the 1952 Industrial Health Clinics sponsored by the committee on industrial health of the State Medical Society; industrial hygiene unit of the State Board of Health, and the industrial nurses section of the State Nurses Association, in cooperation with county medical societies and the industrial plants which acted as clinic hosts. The Milwaukee clinic was held at Columbia Hospital and the Miller Brewing Company plant March 13. The Central States Society of Industrial Physicians and Surgeons participated in the session, and part of the clinic was held in connection with the March meeting of the Medical Society of Milwaukee County. More than 300 attended in spite of one of the winter's worst snow storms. Highlight of the session was a discussion of problems of women in industry. More than 100 physicians, plant managers and nurses met in Eau Claire for the second clinic on

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Medical Director: (110) Age 37; M.D. degree, Wake Forrest College, N.C.; five years, Medical Officer, U.S.N.; six years, Ass't. Medical Director, large oil company.

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April 2. The U. S. Rubber Company plant opened its facilities for a plant tour. Scientific discussion related to treatment of back strains, dermatitis and saving the injured hand. The Eau Claire-Dunn-Pepin county medical society acted as host. On May 7, the third clinic was held at the Nash-Kelvinator Corporation, Kenosha, in cooperation with the Kenosha county medical society, the local manufacturers association, and the Wisconsin Heart Association. Nearly 150 attended discussions of rehabilitation of workers in industry, special problems of handling cardiac cases in industry, and efficient employability of older workers and the conservation of executive personnel.

—*Wisconsin Med. J.*, May, 1952.

Workshop

UNIVERSITY of Pittsburgh, School of Nursing, is offering a workshop for industrial nurses from Monday, November 10, to Friday, November 21, 1952. The purpose of the workshop is to study "The Contribution of the Industrial Nurse to the Total Industrial Health Program." Consultants from special fields will meet with the workshop participants, and supervised field trips for observation at industrial health services in the area will be arranged to meet the needs of the class. Two credits will be given for satisfactory work if the student wishes to matriculate in the University. Students not wishing University credit may register on a non-degree basis. The tuition for the workshop is $37.50. Immediate registration is advised. The necessary application forms and additional information may be obtained by writing to GLENNA G. WALTER, Director, School of Nursing, Pittsburgh 13.

CIO Retraction

A $50,000 libel suit commenced against the Wisconsin CIO publications office by the head of the Kohler Co. medical staff is being withdrawn. DR. C. C. GASCOIGNE said Thursday he planned to ask for dismissal of the action following the August 8 publication of a retraction in the state edition of the Wisconsin *CIO News*. DR. GASCOIGNE had charged that a news article in the May 9 issue was "deliberately, maliciously and falsely" designed to lead readers to understand that Kohler Co. doctors made an incorrect diagnosis of the condition of a plant employee. "Any implication that the Kohler Co. doctors made an incorrect diagnosis or advised or administered any incorrect treatment is without foundation and fact," the retraction notice stated.

—*Milwaukee Sentinel*, August 15, 1952.

The Well (?) Executive

LET'S look at this man as a whole. He doesn't look well. He tells us that he has been working 14 hours a day; that he is often dog-tired, but gets going again with the help of alcohol or coffee; that he has indigestion, constipation, palpitation and many other

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symptoms; that he can't get to sleep at night because events of the day keep running through his mind; that he hasn't had a vacation for five years and can't take one because he's far behind in his work, and because all of his associates are in the same fix; that he has domestic, financial, and other problems. So what? Anyone who followed that man around would know what was wrong with him—but he doesn't. For reasons not fully understood by me, doctors are in a position to insist upon measures for breaking up a vicious cycle that almost anyone could have recognized. All of us know men who have resumed a sane existence after they went away and had time to look at the antics they had been performing. Let's look at another man as a whole. This one is really a whopper. He is 42 years old, of medium height, and weighs 200 pounds. He is in perfectly good health, but he has gained 40 of those pounds in the past three years. He may be inclined to defend this with the argument that all of his family are heavy because they have big bones. He has no ready answer to the suggestion that his bones stopped growing long before he started putting on those 40 pounds. Overweight, or obesity, may not be a disease, but it is a known precursor of many. Contrary to popular belief, many people can be induced to lose weight gradually, and to keep their weight down. Not all, by any means; some keep gaining. Any doctor who examines a number of relatively well people will find pre-cancerous lesions ever so often. Another of our hypothetical patients (who may represent 1 to 3% of the total number) has had some change in his bowel habits; or maybe has has noticed no change. Proctoscopic or x-ray examinations reveal one or more polyps in the colon. From experience, we know that those things should be taken out; the individual one may not develop into a cancer, but a great many do. These pre-cancerous lesions occur all over the body, and they don't give much trouble until they begin to spread; then it's too late. There are some diseases which are not disabling or fatal, but which sap vitality. Many executives (and their wives) who can well afford an adequate diet have mild anemias that are promptly corrected by a hundred iron pills, that could have been prevented by eating more of the iron-containing foods. In our experience, a number of people

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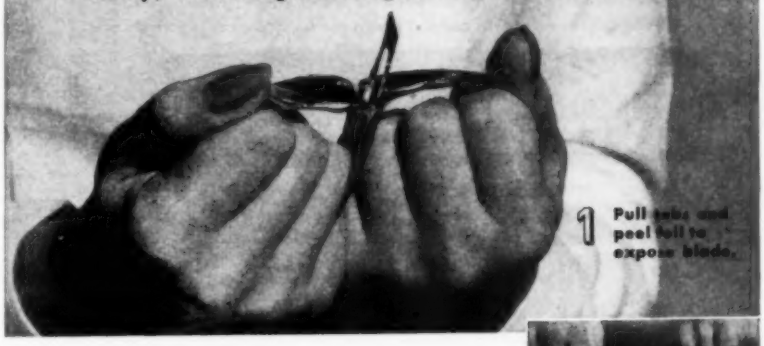

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—From "Danger Signals, Mr. Executive!" by JAMES P. BAKER, M.D., Medical Director, Greenbrier Clinic, in *Performance*, July, 1952.

Electroencephalography

EEG is now used to detect deafness and hearing loss in young children and infants, often when the diagnosis is impossible to make by routine otological tests themselves. Many occupational and industrial accidents take place when a worker has a temporary period of inattention due to a minor epileptic seizure, which does not reveal itself by the more exaggerated symptoms of a grand mal attack (convulsions, frothing). The EEG may be used to detect the worker's propensity for such minor

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seizures, and he may, thereby, be placed in a different job where he will not endanger himself by his inattention. On the basis of their EEG readings, athletes knocked unconscious in a game may be advised on the danger of returning to the sport too soon, and retirement of aged workers may be advised.

—*Medicine in the News* abstr. of "What Do Brain Waves Reveal?" by VICTOR M. VICTOROFF, M.D., in *Science & Mechanics*, August, 1952.

Radiological Safety

A TWO-WEEK special course covering all aspects of radiological safety, conducted by the Post-Graduate Medical School of the New York University-Bellevue Medical Center in cooperation with the U. S. Atomic Energy Commission, will begin October 20; is designed to acquaint industrial hygienists, insurance engineers, state, Federal, county and city health officials, industrial and research institution safety engineers, industrial physicians, and present and potential users of radioisotopes and x-ray equipment with the fundamentals of radiation safety; and will be given at the Institute of Industrial Medicine of the Post-Graduate Medical School. Of the course, DR. A. J. LANZA, Director of the Institute, says "it will be one of the most complete presentations on radiological safety ever offered by an academic institution. With the greatly increased use of radioisotopes — by-products of the atomic pile—in industry and in all phases of medical and industrial research, there is great need for intelligent understanding on the part of those responsible for safeguarding employees and the public of the basic 'dos and don'ts' of radiological safety and the reasons for them."

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